TECHNOLOGY DEPT.

The Refrigeration Service Engineer

VOL. 11 NO. 11 ★ ★ ★ NOVEMBER . 1943

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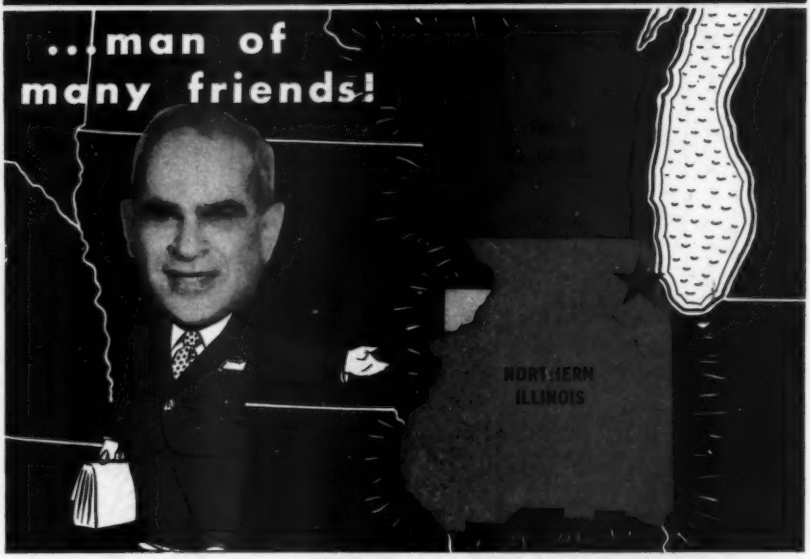
HERMAN GOLDBERG



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RS-40

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An old time rivet heater would be amazed, if not scandalized, at what th[illegible] do to aluminum rivets in plane factories.

An old time rivet heater would be amazed, if not scandalized, at what they do to aluminum rivets in plane factories.

They don't heat them at all—rather, they chill them to low temperature in freezers.

Why? Because certain aluminum alloys desirable for rivets increase in strength and hardness through aging at room temperature. These maximum properties, so desirable in the finished product, are gained at the expense of workability. The aging is fine *after* the rivets are driven—detrimental before. The rivets may crack in driving.

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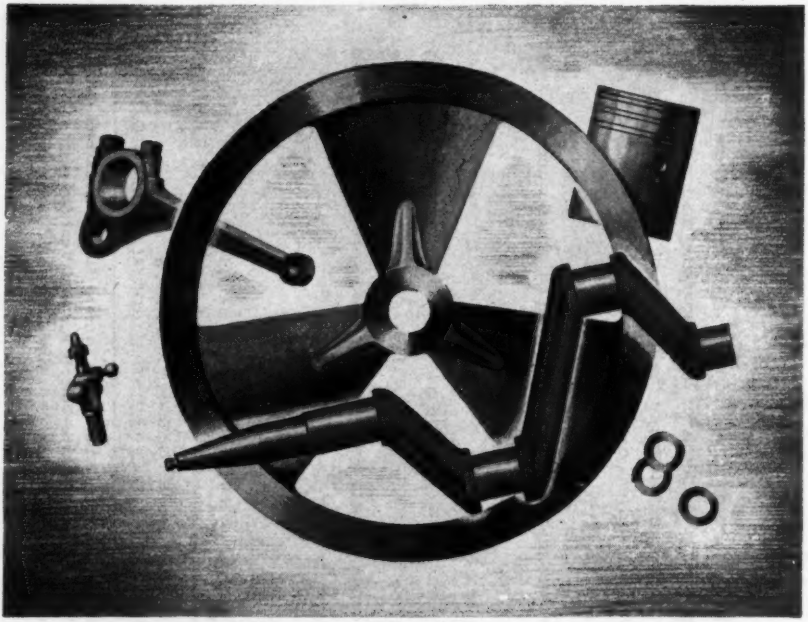

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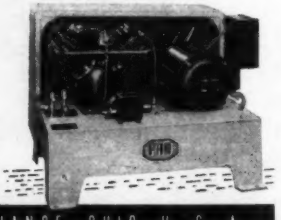

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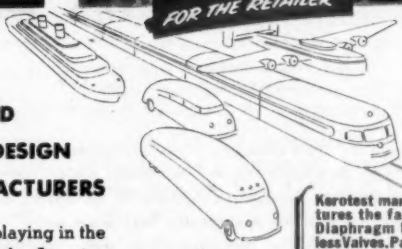

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Kerotest manufactures the famous Diaphragm Packless Valves. Patents — U. S. Patents Nos. 1,890,505 and 2,061,028—Canada Patent No. 340,598

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Time - 1940

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Frick Company
York Ice Machinery Corporation
Typhoon Air Conditioning Co., Inc.
Chrysler Corporation, Airtemp Division
Curtis Manufacturing Company
And many others

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ALCO VALVE COMPANY
Engineered Refrigerant Controls

Time - 194? - After the War

The finest air conditioning units will still use Alco Valves for the same reasons we gave in the above advertisement:

"Alco Thermo Valves are carefully engineered, precision manufactured, and thoroughly tested under all possible operating conditions. By increasing the efficiency of the evaporator they save money in both installation and operating costs — contribute much to improve the performance of any unit."

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ALCO

Designers and Manufacturers of Thermostatic Expansion Valves
Solenoid Valves
Float Valves
Pressure Regulating Valves

ALCO VALVE COMPANY — 857 Kingsland Avenue, St. Louis, Missouri

THANKS for your help!

G-E condensing units are built to *last* . . . and thanks to you, they're lasting beyond their normal life.

Your customers know what a fine job you're doing . . . how you are keeping over-age units working efficiently, averting breakdowns, getting along with a minimum of replacement parts.

They'll remember that job, too, when they are able to buy new equipment after the war. There will be a big market there for you—and another one in the new refrigeration uses that wartime industry is finding. Be ready to take advantage of these new sales possibilities—keep your eyes open *now* for chances to suggest installations of G-E "Scotch Giant" condensing units.

There is a full line of "Scotch Giant" condensing units in sizes from 1/6 to 125 hp—for low temperature applications down to -130 degrees F—in single or multi-stage systems. And every unit is designed for the kind of performance your customers will want. *General Electric Company, Air Conditioning and Commercial Refrigeration Divisions, Section 37111, Bloomfield, New Jersey.*

☆ BUY WAR BONDS ☆

Hear the General Electric Radio Programs: The "G-E ALL-GIRL ORCHESTRA" Sundays, 10 p. m., E W T, N B C . . . "THE WORLD TODAY" News, Every Weekday 6:45 p. m., E W T, C B S

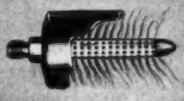
GENERAL ELECTRIC

"Scotch Giant" Condensing Units

DESIGN..
....MAKES THIS REFILLABLE DEHYDRATOR MORE EFFICIENT

This product is available under L-126.

Cross section of Type 743 Henry Dehydrator.



Greater Efficiency Because of Patented Dispersion Tube. Entire volume of the dehydrant is exposed to penetration by refrigerant.

Strainer Tube Can Be Easily Cleaned or Replaced. The reinforced monel strainer tube is silver soldered to the outlet fitting eliminating by-passing of the refrigerant.

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One Piece Drawn Brass Shell. Type 743 Dehydrators in the 6" length are drawn in one so that they have only one joint—[illegible]

Easy to clean! Easy to restore to original efficiency by merely replacing the dehydrant! These are your first reactions when you remember field problems encountered in servicing Refrigeration and Air Conditioning installations. Apart from the refillable feature, however, Type 743 Henry Dehydrator should be the choice of anyone interested in more efficient removal of moisture in a system. This is because many of the standard Henry features of design and construction that have made Henry Dehydrators the choice of the Industry are incorporated in this refillable dehydrator. You will find these features described in detail on the left.

Type 743 Refillable Dehydrator is available in a series of sizes and capacities that will take care of the majority of commercial installations. Best of all, the unit is so reasonably priced that it will pay any service or contracting organization to use it as standard equipment.

HENRY VALVE CO.

HENRY VALVE CO.

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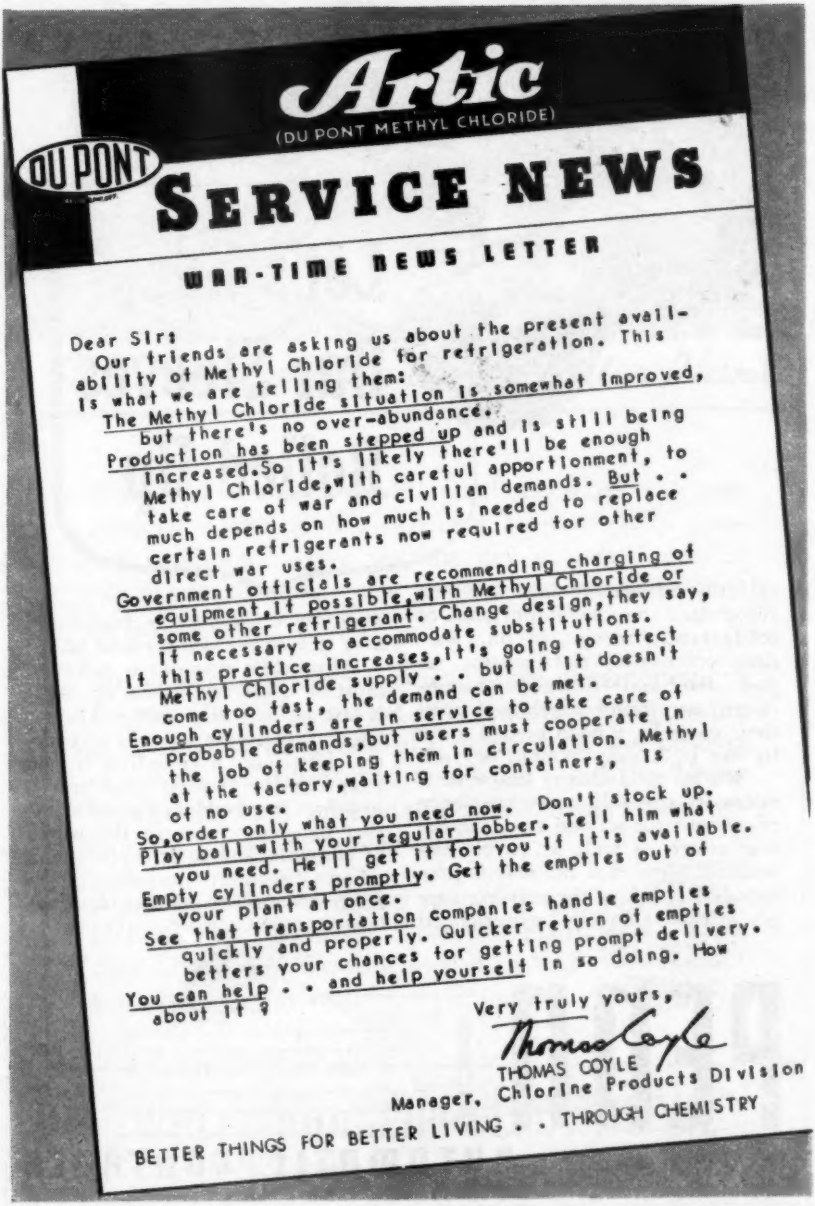

Artic
(DU PONT METHYL CHLORIDE)

DU PONT

SERVICE NEWS

WAR-TIME NEWS LETTER

Dear Sirs

Our friends are asking us about the present availability of Methyl Chloride for refrigeration. This is what we are telling them:

The Methyl Chloride situation is somewhat improved, but there's no over-abundance.

Production has been stepped up and is still being increased. So it's likely there'll be enough Methyl Chloride, with careful apportionment, to take care of war and civilian demands. But . . much depends on how much is needed to replace certain refrigerants now required for other direct war uses.

Government officials are recommending charging of equipment, if possible, with Methyl Chloride or some other refrigerant. Change design, they say, if necessary to accommodate substitutions. If this practice increases, it's going to affect Methyl Chloride supply . . but if it doesn't come too fast, the demand can be met.

Enough cylinders are in service to take care of probable demands, but users must cooperate in the job of keeping them in circulation. Methyl at the factory, waiting for containers, is of no use.

So, order only what you need now. Don't stock up. Play ball with your regular jobber. Tell him what you need. He'll get it for you if it's available.

Empty cylinders promptly. Get the empties out of your plant at once.

See that transportation companies handle empties quickly and properly. Quicker return of empties betters your chances for getting prompt delivery.

You can help . . and help yourself in so doing. How about it?

Very truly yours,

Thomas Coyle

THOMAS COYLE
Manager, Chlorine Products Division

BETTER THINGS FOR BETTER LIVING . . THROUGH CHEMISTRY

Let's Keep Our Sleeves Rolled Up

Selective Service officials have now recognized the vital importance of refrigeration service in our wartime economy. "Refrigerator repair men" and "refrigerator engineers" may not be inducted until their cases have been passed upon by the U. S. Employment Service.

We in the industry know how necessary the skill and experience of refrigerator service men is to the war effort, as well as to civilian welfare. Now that the way is provided to conserve the existing supply of this "critically" experienced manpower, *all of us in the industry need to keep our sleeves rolled up.*

More than ever our watchword must be "conserve"—fix it up, make it last as long as possible. The refrigeration equipment of our country constitutes a vital link in our program for victory. *Penn renews its pledge to give the best possible support* to service men in the repair of controls, and their replacement when absolutely necessary. *Penn Electric Switch Co., Goshen, Indiana.*
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We at White-Rodgers cannot answer these questions for you. But, if the control of temperature and pressure is essential to the successful application of your product or service, we will be glad to tell you about the White-Rodgers Hydraulic-Action principle of temperature control and the advantages it offers.

To assist you in setting up your post-war plans we have prepared a "Post-War Planning Checklist." We will be glad to send you a copy upon request.

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Ranco Inc.

COLUMBUS, OHIO

The Refrigeration Service Engineer

Vol. 11 No. 11

November, 1943

A Monthly Illustrated Journal Devoted to the Interests of the Refrigeration Service Engineer in the Servicing of Domestic and Small Commercial Refrigeration Systems and Oil Burners

Official Organ
REFRIGERATION SERVICE ENGINEERS SOCIETY

The Cover

Storing cellophane-wrapped produce in the frozen-food locker provides fresh, flavorsome foods the year round. Story in the September issue page 40.

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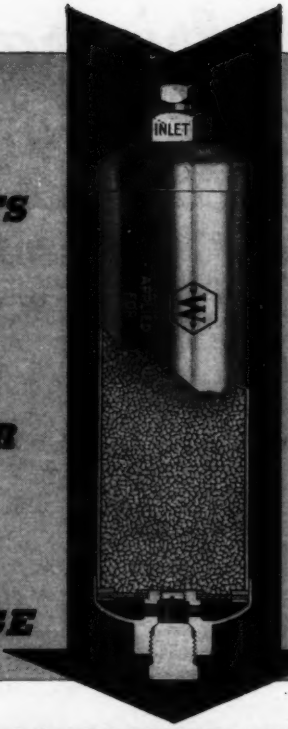
NO GASKETS

NO SOFT SOLDER

NO LEAKAGE



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The Refrigeration Service Engineer

Vol. 11, No. 11 CHICAGO, NOVEMBER, 1943 $2.00 Per Annum

A Practical Method of Repairing Motors

Much has been written of theory and test of electric motors; little of the practical procedure to "service" one has been offered. Thus, this article which covers that subject is timely and should be of interest to many refrigerator service men because of the unusual difficulty, delay and red tape encountered in obtaining repairs at a regular shop due to wartime regulations and restrictions. The author is engaged in the work of repairing motors and is well qualified to offer practical suggestions.

By Orville H. Smith
Morgantown, W. Va.

THE motor with which this article deals is the "Frigidaire" or "Delco," Repulsion-Induction from ⅙ to 1½ hp. The procedure described, however, may be utilized in servicing other makes of motors and comes from actual experience.

I have found that motor repairs fall into two groups, those of a minor nature and those requiring major repairs such as rewinding. With present day motor protective devices and proper fusing, 95 per cent of motor repairs will be minor. Of course, we can attribute part of this high percentage to the customer, who now, as never before, maintains an almost constant vigil over his appliances which is manifested in the increasing number of unimportant and inconsequent requests for service. Even in normal times the percentage of motor repairs falling into the minor category would exceed 85 per cent.

Checking for Troubles

Motor troubles (Repulsion—Induction) will usually be one of the three following classifications:

1—Motor refuses to start (a) hums, (b) does not hum.

2—Motor will not come up to running speed.

3—The overload device operates if motor does come up to speed.

These troubles are usually caused by too little oil for bearing lubrication; too much oil which seeps into the commutator recess impairing short-circuiting; using the wrong kind of oil, or an actually overloaded motor caused by:

1—High head pressure.
2—Insufficient oil in compressor.
3—Excessive belt tension.
4—Driver and driven pulley out of line.
5—Frost back.
6—Short-cycling.

Line voltage and voltage drop should be checked in the event of a motor failure.

The first consideration is the bearings. Leave the pulley on the shaft and grasping it in one hand, holding the motor solidly, try to shake the shaft at right angles with motor. Roll the motor over in various positions to do this.

If you can move the shaft, even the slightest, with or without audible noise, the bearings are worn and must be replaced. Do not mistake end-play for bearing wear, and even if bearings seem to be okey they must be checked again after the shaft and inside of the bearing has been cleaned, for sometimes a sticky scum (caused by some lubricants) on the bearing surface will prevent movement. Another point to remember is to never replace only one bearing. Does it not stand to reason, that two bearings functioning at either end of a straight shaft, such as a motor must be; should one bearing be worn so will the other to the same degree?

Motor repairs are best done away from the customer's premises. No doubt, some customers will complain, "It must be the brushes." Brushes wear rapidly due to high mica or excessive short cycling of the machine. The commutator must be turned in a lathe to smooth both copper and mica. Also, very few motors require the mica to be undercut. Undercutting will permit dirt, copper filings or dust and carbon to collect in the apertures, which over a brief period will interfere with commutation and short-circuiting.

Observing the distance of the pulley upon the shaft will aid in belt alignment when the motor is returned to the job. Belt alignment must be checked after motor repairs because of end play and mounting disturbances encountered.

Center-punch along a through bolt in as straight a line as possible, one dot on either end bell and one on stator winding case. Center-punching will guarantee mounting of the end bells back in the correct position, which is very important in the setting of the brush holder.

The three bolts are removed and if tests up to this point indicate good bearings there should be no burrs or slivers on the motor shaft to cause damage to the back bearing.

Most repair shops in making reference to which is front or rear of the motor; consider that end opposite the protruding shaft the "front."

Remove end bells, being careful not to damage that portion where end bells and stator winding case mesh together. Burrs at this point will interfere in assembling and cause imperfection in alignment.

The next step and perhaps the most important is to get the armature in condition, as this member of the motor determines the efficiency of starting and torque development.

Remove oil throwers, spacer washers, and pins. Never pound an oil thrower or combination spacer — oil thrower — governor spring retainer from the shaft. Distorted and bent shafts, damaged parts and end play disturbances are the result of such pounding A special tool has been designed for this purpose.

The governor spring, brush holder, short circuiting necklace, governor spring barrel, spool and governor rods are taken out differently depending on the model of the motor. Some have half-moon or full half-moon retainers, others come off when the oil throwers . . . is removed, and larger motors require a puller that removes necklace, spring, and holder all in one piece. The holder may contain balancing weights and the position of the holder in relationship to the rest of the armature should be marked to guarantee assembly back in the exact position.

Cleanliness of Motor

Cleanliness of a motor cannot be stressed too much. Carbon-tet or dry cleaning solvents may be used for cleaning small parts. Never apply solvents to the windings to clean them unless facilities are available for baking them out. Windings should be cleaned by blowing the loose particles out with compressed air. Some authorities advocate the air pressure to be around 30 lbs. per square inch gauge. Actual practice indicates a pressure of 50 lbs. or more to be much better and efficient. One reliable shop, that I know of, permits a pressure of 150 lbs. to be used for this purpose.

Inspect the commutator, especially in the recess for the short circuiting necklace and spool. If the commutator at this place is pitted, burned, rough, mica high, or extremely dirty it must be turned in the lathe.

If the solder has been loosened, melted and thrown from the outer periphery, the bars must be resoldered before turning. When soldering, use paste or a recommended liquid flux, never use acid or acid core solder. A large soldering iron is best and great care should be given to make sure the solder flows all the way to the bottom of the slot. If only a few bars need soldering, do not just solder those few, but go all the way around as the heat applied to those few bars may have loosened the solder of the adjacent bars. Remove all overlap of solder from the bars while turning in the lathe or shorted coils will result.

Never just turn the copper-mica part of the commutator recess, cut out the steel too,

because uneven wear, faulty short-circuiting, and rapid depreciation of the necklace will result. This operation requires a long, curved sharp tool bit in the holder of the lathe.

Lathe speeds should not be too fast and very shallow cuts should be taken at a time. Never remove more from the commutator than is necessary in order to prolong the life of the armature.

Very fine sandpaper or a special commutator stone may be used to polish the surface.

If a growler is available, the armature may be checked for "shorts" and "grounds" at this point. A ground can be detected by the ordinary test lamp. It is well to test the stator windings for grounds also.

The armature is now ready to reassemble. Polish the governor rods and compare their length. An unequal throw of the governor weights will cause imperfection in the acceleration.

Always replace a worn, pitted, burned, or discolored necklace. After the governor rods, short circuiting necklace and spool are in place, work the governor weights on the back end of armature. When the weights are fully open, the outer edge of the necklace spool should be even or very slightly above the brush riding surface of the commutator. If this condition is not met, the governor rods must be lengthened or shortened as suits the particular need. (Welding rods of similar diameter make excellent long wearing governor rods.) The necklace spool should work up and down freely on the shaft and within the recess.

Replace the brush holder, spring barrel, and spring. If the spring retainer is also the oil thrower and spacer, be sure it is pressed snugly against the shaft shoulder over splined portion provided because the end play will be affected as well as the tension of the governor spring which determines the speed at which the brushes "kick-out."

It is well to have on hand a new governor spring for the 1/6-1/6-1/4-1/3- some 1/2-hp. motors for comparative purposes. The tension of the old spring should be compared to that of a new one. The tension may be measured by placing a small platform or ordinary household scales beneath some fixed object. Insert the spring between scale and fixed object. The pressure or tension may be read directly on scales in pounds. The pounds deflection of a new spring and that of the old spring (spring under test) should be within 1/2 pound of each other.

This method may not measure the exact tension of the spring, but is a good comparative test and has proven itself at one shop to be highly dependable.

A weak governor spring will permit the brushes to lift before the motor has come up to the proper speed which is around 1850 RPM minimum at full load. Also a weak spring may cause the brushes to lift, the motor lose speed, and brushes regress to starting position. This procedure may repeat many times before the motor attains running speed. If this condition occurs with no load, the trouble is due to poor commutation or short circuiting, such as would happen if the commutator recess were out of round or dirty, etc.

Most service shops prefer to use new brushes because the old ones may be ridged, hardened, burnt, or worn. Brushes should be made to work up and down freely in their respective slots and the lugs should be bent over to assure complete lifting from the commutator which is a cause of objectionable noise.

Using fine sandpaper, polish the bearing surfaces of the shaft, (this may have been previously done in the lathe) and having cleaned the end bells, removed the oilers, the wicking, and brush holder guide from front end bell; slip the end bells on their respective shaft end. Try to shake them. If either can be moved producing a bumping noise or right angle movement is noted, that bearing is worn. A snug fitting or good bearing, when testing in this manner, will sometimes move very slightly but always without an audible noise. Experience is the best guide in making this test. If the bearings should again check all right, it is possible, after the motor is reassembled to again check them. The motor, after it is started and lying on a solid, vibrationless surface, will run so smoothly that it can hardly be heard. Only the familiar purr of the electrical alterations will be audible.

It would be well to state a hard and fast rule at this point:

A—When the motor runs with current "on" and there is vibration or noise, but there is not vibration or noise with motor coasting and current "off," the trouble is electrical, in the coils or other parts of circuit.

B—If the vibration and noise are about the same with the current "on" or "off," the trouble is mechanical, in the bearings and/or brush lifting mechanism, governor weights, etc.

The above test should be made with the motor resting on a level, solid support and without the pulley on the shaft.

There is probably only one exception to the two rules given above. If the end-play is too great (end-play in most motors should be from .025 to .035 of an inch) the magnetic force will sometimes cause the armature to rock in and out producing a bumping, chattering sound while the motor runs, but will not when the motor is coasting with the current "off."

The tests made up to this point, we will assume, indicate defective bearings. It's extremely poor practice to drive bearings out with any suitable round object and a hammer. End bells are cracked and damaged, and if the new bearing is inserted by pounding, very likely it will be bent or distorted in the middle and the end will be slivered and battered which will affect the end-play. Special pullers and adapters should be utilized.

After the new bearings have been inserted, assemble the end bells and stator case together using all four through bolts. Using the proper size line reamer or special aligning adjustable reamer ream from front to back turning the reamer in the clockwise direction for both insertion and withdrawal.

Many Delco 1/6-1/3 and 1/4 hp. motors for Refrigeration are reamed with a standard 5/8 in. line reamer. The 1/6 hp. model 8140 with flanged bearings is slightly undersize and should be reamed with the adjustable aligning line reamer and the bearing burnt in.

Good Bearings Essential

Too much emphasis cannot be placed on having good bearings in a motor. Line reaming is the best possible assurance of attaining that goal.

Remove all cuttings from the oil wells, bearing surfaces, windings, etc. The success of motor repairing largely depends on the degree of cleanliness practiced by the operator.

Assemble the brush lifting guide mechanism on the front end bell after inspecting and removing any burrs or slivers which might interfere with the lifting of the brushes. This guide is marked with a notch, arrow, or some other means to indicate its exact position relative to the direction of armature rotation and setting of the brush holder. Most motors for refrigeration rotate counter-clockwise facing the front or brush lifting end of motor.

The complete motor may be assembled with the exceptions of the oil wicks, etc., and some of the spacer washers. Attach the test leads and run motor about two minutes with no oil in the bearings or on the shaft. Heating of the end bell around the bearing indicates it is tight and must be reamed a little more or if the fit is not extremely tight the bearing may be burnt in. To burn the bearing in, the motor is run and stopped at short intervals. When a drop of oil is applied the rotor turns freely by hand.

After "burning in" the shaft and bearings must be cleaned of filings and any blackened areas on the shaft are removed with fine sandpaper. In the operation of burning in, the motor should not be allowed to stall, also use 220 volts if the motor is of dual voltage design as most of them are. Burning in is quicker than running in and requires a little more skill, however, experience will soon teach the operator just when to stop the burning in operation.

Adjusting End Play

Now, with bearings all right so that armature turns freely by hand, the end play should be adjusted. When the motor runs the armature will automatically pull itself into that line which will cut the greater number of lines of magnetic force. By pushing the armature in and out, it is possible to tell approximately how many spacer washers will be needed on either shaft end. Some motors incorporate a hollow plug made of metal either being driven into recess provided or with threads and lock-nut. Spacer washers, with this latter arrangement, are seldom needed on that end of the motor.

Examine the oil wicks by rolling between your thumb and finger. Lumpy, hardened, or burned portions indicate the wicking is unsuitable for continued use for its capillary properties have been impaired. Be sure to remove all the old oil from the end bell oil reservoirs. Many motors have plugs at the bottom on the inside of the end bell to facilitate this operation.

Always use sufficient quantities of wicking and cover the shaft at the hole in the bearing adequately. Saturate the wicking with number 20 or 30 weight good grade automobile oil. Many bearing failures result from use of thin, bodyless, recommended oils now up on the market.

Replacing the motor pulley on the shaft, the motor is ready to be returned to the job. If our work has been carefully done, no adjustments need be made. Occasionally the brushes will require a slight shifting in order

to obtain proper acceleration or "kicking out." Only a slight shift of 1/32 in. at a time, in either direction, should be made.

The place where the motor comes up to full speed at full load the quickest, is the proper brush holder adjustment. The usual reason for this adjustment in the field is because the end bell was shifted from the original factory position, therefore, the careful punch-marking as stated in the foregoing.

If the shop is equipped with a testing machine which incorporates a tachometer and prony-brake the brush holder is adjusted and governor spring checked at the shop. However, the purpose of this article is to convey the idea to the unequipped service man that it is not beyond the realm of impossibility for him to repair his motors satisfactorily without the aid of special equipment. I am doing that very thing at this moment for one of the largest companies in West Virginia, and we, like many others, were caught at the outbreak of the war without any motor repairing equipment whatever. What were we to do when the regular motor repair shops turned strictly to A-1-A or higher priority defense work?

Most Delco fractional horsepower motors may be repaired with only the following:

1—Bearing tool and adapters.
2—Oil thrower puller.
3—Line Reamers (very important.)

A lathe is optional because many garages usually have one which can be rented or they will turn commutators for a nominal sum.

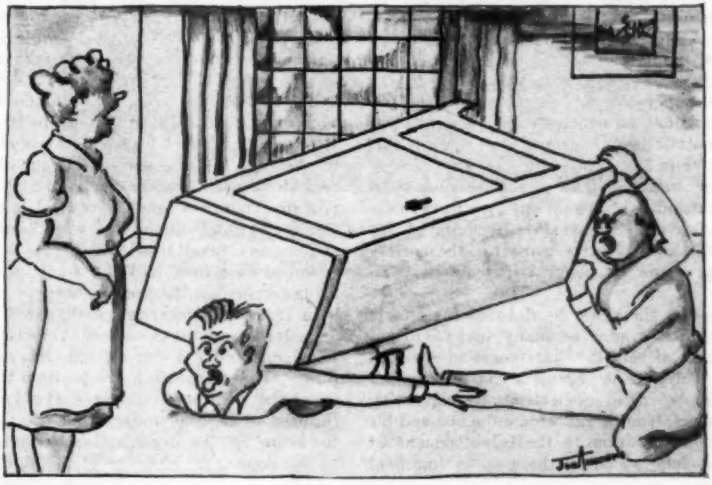
An example of good motor starting is as follows:

A 1/6 hp. model 8140 Delco motor used on a Frigidaire model EF condensing unit will kick out in from four to seven seconds when the back pressure is from 15 to 20 lb. gauge SO_2. When the back pressure is around 4 to 6 lb. gauge SO_2 the motor will come up to full running speed in from 1 to 3 seconds.

TRUCK REFRIGERATION SERVICE

A TRUCK refrigeration service to be provided by the Provincial Government to transport small catches of fish to the larger centers where cold storage and processing plants are available has been recommended to the Royal Commission on Postwar Rehabilitation as a solution to the marketing problems of the small boat fishermen of Nova Scotia. The commission completing a tour of sittings throughout the Province, held the first of its three-day sessions in Halifax.

Oh! I do wish you men would be more thoughtful of my newly waxed floors.



Joseph Franklin Nickerson

A BIOGRAPHICAL SKETCH

ON OCTOBER 20, Joseph Franklin Nickerson, editor and publisher of REFRIGERATION SERVICE ENGINEER, died after a long illness. The founder of this publication and others in the refrigeration field, he had been in active direction for fifty-two years. He was born on Cape Cod, Mass., April 20, 1861, and came to Chicago at an early age, where he established connection with the publishing industry.

In 1891 the refrigeration industry was in its infancy and was composed of a number of men and organizations operating on an individual basis without coordination and with little appreciation of the industry as a whole. Mr. Nickerson saw the need for correlation of these many diverse forces and of unity in interest of industry development. He realized that a national magazine devoted to the entire refrigeration field would do much to pull the industry together and make it a truly beneficial force to the nation as a whole.

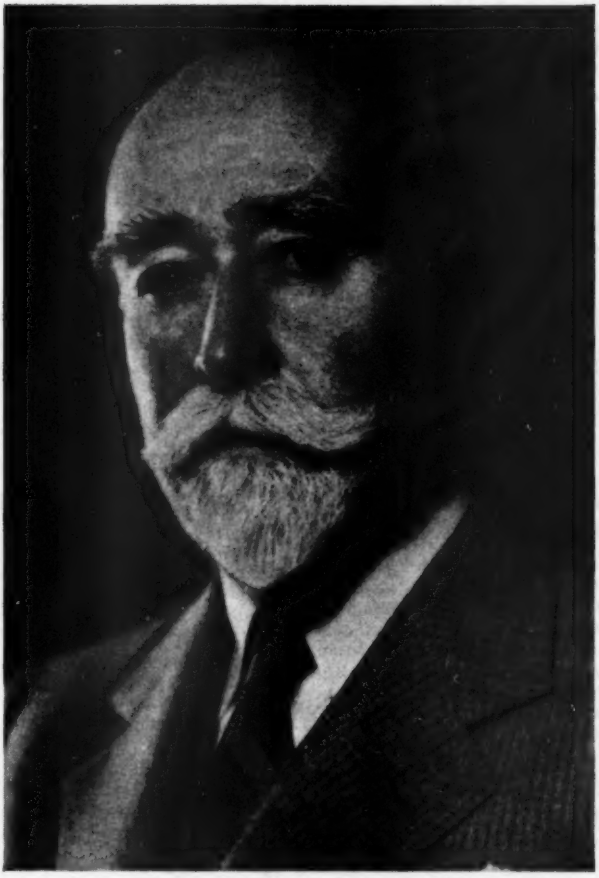
The first issue of ICE AND REFRIGERATION was published in 1891. It met with wide acceptance and has continued to expand and grow in service to all phases of the refrigeration industry.

In 1933 Mr. Nickerson saw the need for closer cooperation among the many men and organizations servicing mechanical refrigeration installations. Accordingly, he took the initiative in the organization of The Refrigeration Service Engineers Society and established its official publication, THE REFRIGERATION SERVICE ENGINEER. Because of his valuable and effective work for the society he was made an honorary life member in 1934.

Through the years he devoted his efforts to the furtherance of many ideas and institutions of benefit to refrigeration development. In 1904 he became a charter member of the American Society of Refrigerating Engineers, lending his wide influence and his hearty cooperation to the establishment of that society which in the engineering field was designed to accomplish somewhat the same function that ICE AND REFRIGERATION had in the publication field. As a tribute to the effectiveness of his work in behalf of the society he was made an honorary member in 1940 at the 35th Anniversary Meeting of the society.

Mr. Nickerson established contact with foreign governments and took to the State Department in Washington his interpretation of what refrigeration would mean to a world grown smaller and smaller as communications brought the nations closer and closer. Therefore, in 1908, when the first International Congress of Refrigerated Industries was held in Paris, it was logical that our industrial and scientific people should participate, and that Mr. Nickerson should be secretary of the American Committee. The work of the group culminated in the formation of the International Institute of Refrigeration, which united thirty-nine countries for the discussion and exchange of facts and ideas, with branches in each of the important countries and a central office in Paris. Throughout the last war the organization was maintained ready to function when peace came, and the same policy is being pursued at the present time.

In 1909 Mr. Nickerson participated in the organization of the American Association of Refrigeration, and was elected General Secretary at the first meeting, a position through which he continued to serve the industry throughout the remainder of his life. Later, the name of the organization was changed to the American Institute of Refrigeration,



Joseph Franklin Nickerson
April 20, 1861—October 20, 1943

and its work as a coordinating force in the refrigeration industry is well-known to all. It has arranged for American participation at all International Congresses of Refrigeration, and in addition has encouraged valuable investigations incident to the establishment of units and standards of refrigeration.

Shortly after our entry into the first world war, Mr. Nickerson in the name of his company, called a meeting of leaders in the ice industry to form an effective organization and place the collective resources of the industry behind the war effort. This meeting immediately resulted in the formation of the National Association of Ice Industries which fulfilled its objectives in connection with the war, and has served the industry since that time.

In 1920 Mr. Nickerson led in establishing the National Association of Practical Refrigerating Engineers on a countrywide basis. During his travels about the country he was personally responsible for the establishment of many of the chapters of the association, and throughout the following years the association benefited from his active interest and his constant helpful cooperation.

In 1926 the National Association of Refrigerated Warehouses presented a tribute to Mr. Nickerson, "to recognize his outstanding service to the cold storage industry of the United States." In earlier years he had helped to establish this organization and had done much to foster its growth to the position of importance it has long maintained.

Few men are accorded the opportunity of serving an industry on a national and international basis for more than half a century. Mr. Nickerson accomplished this and to it he gave the work of his entire life. Throughout this full time he was always one on whom leaders of the various sections of the industry could depend to devote his great energy and broad vision in the furtherance of any activity of a progressive and beneficial nature.

He is survived by a sister, Mrs. H. Rowland Curtiss and two brothers, Lloyd Roger and Lyndon Earl Townsley.

ADVISORY COMMITTEE ASKS FOR MORE REFRIGERATORS

A COMPREHENSIVE brief, requesting substantial relaxation of Limitation Order L-38, which restricted the manufacture of walk-in and reach-in refrigerators, was presented to the War Production Board November 4, 1943, by the Commercial Refrigerator Industry Advisory Committee.

Arguments presented by the committee members indicated that markets, the principal users of walk-in refrigerators, were now receiving fewer deliveries of perishable foods, and consequently required greater storage handling capacity.

Restaurants, the main users of the reach-in type of refrigerators, have also found it necessary to request greater storage capacity due to restricted deliveries of merchandise. Both markets and restaurants alike are faced with the problem of handling these larger deliveries and at the same time complying with local sanitary laws.

The request for relaxation of the limitation order on manufacturing has been taken under advisement by the General Industrial Equipment Division of the WPB. WPB also announced that a committee will be chosen to study the 1944 replacement equipment requirements for food storage equipment.

MORE TIN IN SOLDERS

THE War Production Board on November 3 issued General Preference Order M-43, as Amended, relaxing restrictions on the tin content of solders where it has been found that higher tin content is necessary. Previously this higher content could be used only upon the granting of appeal. But under the amended order specific provisions permit higher tin content, in some cases above 21 per cent, for certain solders, thus reducing paper work. Careful survey has shown that the higher tin content solders permitted will actually result in a saving of tin.

STRATOSPHERE FIRING RANGE

A 22-ft. firing range has been designed by York Corp. refrigeration engineers to test the effectiveness of heavy calibre guns in a man-made stratosphere at a temperature of minus 70° F. The range will consist of twin steel vacuum chambers where temperature and air pressure will duplicate the stratosphere nine miles above the earth. In this atmosphere, shells will leave the muzzle of the guns, travel the length of the 22-ft. range and plow into 20 tons of sand with the force of approximately 3,600,000 ft. pounds of energy, according to John Bergdoll, of the York laboratories.

Service Pointers

Practical Service Men Tell How They Meet New Repair and Service Problems

UNDER this department a number of practical service men show a commendable cooperative spirit in passing on to others information on special repair and service problems that may be of much value in these trying times of material scarcity and shortage of competent help. We believe if more readers would send similar contributions, making THE REFRIGERATION SERVICE ENGINEER a medium for the exchange of information on service, much benefit would accrue to all. Similar contributions are solicited from all readers.

INDUSTRIAL COOLANT SYSTEM

Here is a man who asked a question, then found the answer himself. The symptoms of the trouble and the final answer provide an interesting story and furnish a future guide to the servicing of this type of system.—Editor.

September 2, 1943

Editor:—I have a number of 1 hp. Brunner condensing units to service, which are mounted on a tank 8 in. x 12 in. x 32 in. with an evaporator coil submerged in it. This unit is controlled by an automatic expansion valve and a thermostat in a dry well in the tank. The refrigerant is methyl.

These units are refrigerating the coolant on a factory production machine. Each machine has a reservoir of approximately 50 gallons of coolant that is circulated by a pump through the machine and the refrigerated tank. I was not able to get a reading of the coolant without refrigeration but am told that it got so hot that you could hardly keep your hand in it. With the refrigeration the coolant goes from the reservoir to the refrigerated tank at 86° F. and dumps it on the machine tool at 80° F. The customer wants it 6° to 8° F. lower, which I cannot seem to accomplish.

I seem to have trouble adjusting the expansion valve. I cannot run the suction over 18 or 20 lbs. or it will trip the overload heaters which are rated at a 25 per cent overload. At 20 lbs. suction I get a 120 to 130 lbs. head pressure. The room temperature is 75° to 80° F. with plenty of air. On some machines with a 20 lb. suction the suction line will frost back to the compressor badly, but will clear by reducing the suction pressure, which also raises the temperature of the coolant. The liquid lines have sight gauges. Must the gauge be completely free of bubbles to insure a full charge?

I will appreciate any help you can give me in adjusting these machines, and with the information I have given you, can you tell me if the unit is large enough for the job? —E. H.

September 16, 1943

Editor:—Since writing you I have located the trouble on the Brunner units. The muck and dirt in the coolant from the grinding got into the regrigerating tank which, of course, insulated the evaporator coil and caused poor circulation of the coolant over the evaporator. Cleaning this and reducing the back pressure to 15 lbs. gives the refrigeration necessary.—E. H.

HELP! HELP!

NEW problems for the service engineer which in turn create new questions, answerable only from experience in the field arise every day. Readers are invited to submit questions on which they would like to have information as to what others are doing. Answers are solicited from readers and will be published in the "Service Pointers" department.

CONVERTING HOME FREEZER UNIT

I am interested in converting a used display case, ice cream cabinet or household cabinet into a freezer storage unit for use in a farm home. If any readers have done this type of work, I should like to know how they do it.—E. D.

Keeping Workers from Getting Hurt

The skill and strength of our industrial workers must be guarded against accidents and diseases so as to carry through the war production program. With this end in view, the committee to conserve manpower in war industries has compiled a list of safety rules to keep workers from getting hurt. This is the fourth of a series of articles prepared by the United States Department of Labor so that all workers can check the hazards applying to their own jobs and safeguard life and limb in their own interest and that of war production.

Material Handling and Storing

1. Learn to lift the right way. Keep the body upright; lift with the leg muscles and not with the back. Do not try to lift too much. Get help if necessary.

2. Wear hand pads or gloves when handling sharp-edged scrap or rough material.

3. Remove all projecting nails from barrels, crates, and all other places where they might cause accidents.

4. Keep floors clean. Oil or water is especially dangerous on floors near machines, near sharp-edged tools or materials.

5. Do not use gasoline or other inflammable substances in a closed room or near an open flame or on a hot surface.

6. All oils, paints, and other inflammable or explosive substances should be stored in specially provided safety containers, and only small quantities of such materials (never more than a day's supply) should be taken into the workroom at one time. Containers for inflammable substances should be marked with proper identification and never used for any other purpose.

7. Arrange materials carefully and securely. Do not pile or place objects or materials near machines or in such a position that they can fall over or block passageways.

8. When piling materials, do not leave projecting edges or points against which someone may strike.

9. Put all scraps and waste materials into proper receptacles. Keep oily and paint-covered rags in closed metal containers.

10. Keep all aisles and exits clear.

Construction Work

1. Look out for those below you. Make sure that no one is in the way before you throw anything down. And do not leave material or tools where they may fall.

2. Test a scaffold plank with four times the load it may have to bear in actual use. Discard the plank if it shows the slightest sign of weakness, and mark it so no one else will use it as a scaffold plank.

3. Keep out from under suspended loads.

4. Report immediately any defective tools, ladders, or scaffolding.

5. Make sure that any temporary staging or platform is constructed safely enough for any load it will have to carry.

6. Don't work on, or attempt to fix, electrical apparatus, electric wiring, or machinery unless that is part of your job.

(Continued on page 38)

News Briefs on War Regulations

Tighter Control Over Freon

THE vital importance of chlorinated hydrocarbon refrigerants, ("Freon"), in the production of certain war materials, as an insecticide for malaria control, and for other essential military and civilian uses has made it necessary to tighten control over these refrigerants in some respects, the War Production Board has announced. However, their uses for certain refrigeration and air conditioning installations directly connected with the war program have been exempted from the necessity of obtaining specific WPB authorization for individual deliveries.

Conservation Order M-28 as amended September 8 by WPB required certification of purchase orders of Freon by users to the effect that it is needed for immediate use. Certification formerly stated that the refrigerant would be needed during the following thirty days. This, in effect, means that Freon may only be purchased in the case of actual breakdown and not for "stand by" charges except as designated.

The amended order also requires purchasers and users of Freon 12 (dichlorodi-fluoromethane) for ship building operations to make separate authorization application giving specific data on its proposed use. However, Freon 12 may be obtained for specified systems and uses enumerated in List C through purchase order certification without WPB authorization. Among the 27 types of uses included in List C are:

Air conditioning to maintain prescribed conditions in laboratories conducting tests on parts or instruments for aircraft, combat tanks, ships, radio equipment; air conditioning for temperature and humidity control in the production of gyroscopic instruments and compasses; air conditioning for the production and storage of penicillin and blood serum; refrigeration for cooling X-ray apparatus used in analyzing castings in aircraft and other combat vehicles; and refrigeration for low temperature chambers designed to duplicate substratospheric conditions for testing instruments, flying clothes, personnel and equipment.

Deliveries of Freon 11 (monofluorotrichloromethane) have been exempted from specific authorization except for List B installations. This change has been made because Freon 11 is a by-product of Freon 12 and its production does not lessen the output of F-12. There is sufficient supply of Freon 11 to meet requirements.

S S S

Delivery of Refrigerators

FURTHER restrictions on delivery of domestic mechanical refrigerators to Government claimant agencies were imposed October 23 by the War Production Board.

In an amendment to Order L-5-d, WPB limited delivery without certification to the United States Maritime Commission and the War Shipping Administration for shipboard use only. Transfers to the Maritime Commission and War Shipping Administration for other than shipboard use and to the Army, Navy or any other claimant agency are subject to certificates of transfer, issued by the War Production Board on Form WPB 867 (formerly PD-428) regardless of previous commitments, orders or contracts. Applications for certificates of transfer must be filed on Form WPB-882 (formerly PD-427).

Previously, transfer of domestic mechanical refrigerators to the Army, Navy, Maritime Commission, War Shipping Administration and the Panama Canal was unrestricted.

The reason for this action is that the quantity of domestic mechanical refrigerators remaining in the stockpile has diminished to the extent that further restrictions based upon the end use of the refrigerator have become necessary.

Sales of domestic mechanical refrigerators were frozen on February 14, 1942, followed by stoppage of all production on April 30, 1942.

S S S

REFRIGERATION SCHOOL

FOR Navy men who will take charge of refrigeration equipment on American fighting ships, Carrier Corp. has arranged a refrigeration school. The course incorporates part of the course of study given engineers who joined the Carrier organization in peace time and includes much of the training given to personnel of the company participating in repair and maintenance work.

COMMERCIAL

INCREASE BUSINESS BY DOING A MORE EFFECTIVE JOB OF SELLING *Selling*

"Information Letter" Helps Refrigeration Service Firm Give Better Satisfaction

By Robert Latimer

A SIMPLE means of offsetting mistakes and misunderstandings which may otherwise cost the company much good will is the "information letter" developed by Modern Service Company, Dothan, Alabama.

Handling a heavy load of commercial, domestic and government refrigeration repair work, the Modern concern found that a common drawback to war-time business was over-enthusiastic promises and misinformation. Customers calling in for certain repairs were told that a man would be on the job at a certain time and with the correct replacement parts—only to default later when a check of his time and materials showed one or the other wasn't available. Also, servicemen were never sure of any fact the customer wanted to know; because of the quickly changing war time picture. The result was ill-will and costly mistakes now and then which could have easily been averted.

All Read Information Letter

There are now no such misunderstandings since the management began to make up a daily "information letter" which is sent around each morning to be read before nine o'clock. It is every employe's responsibility, no matter what his job, to read and initial the letter in a space provided for it.

The letter starts off with a greeting to employes. Underneath, the first paragraph takes up first prices, and any changes which may have been made in government price ceiling regulations. All new edicts governing air conditioning and refrigeration work are also clarified to make them easily understandable to everyone on the payroll. (Modern wants its staff to be able to discuss such problems intelligently and confidently with customers.)

The next paragraph gives the schedule for the day, explaining how the crew's time will be budgeted against current work on the books. If there is any spare work-time available, it is quoted—this information valuable both to the dispatchers who receive emergency calls and to service mechanics.

Following this, a clear, graphic summary of the amount of parts on hand is given, with the facts concerning replacement, and what the company cannot provide—such as valves, electric motors, refrigerant fluids,

etc. Completely honest, this information prevents any employe from promising work which cannot be done, and has prevented several serious snarls of work which might crop up otherwise.

Lastly, the letter commends various employes for good work, for ideas turned in for more efficient refrigeration service, and gives "homey" news about the families of employes. It closes with a statement of the amount of business done for each day; something which makes the employe feel as though he is a partner in the concern.

All this information is gotten together each afternoon by a secretary, typed into readable form, and stenciled on a mimeograph for reproduction. Carrying one of the letters with him, the serviceman is well armed with up to the minute information —something which every user of refrigeration appreciates during the troublesome war period.

Refrigeration Combined with Giant Fan to Test High Altitude Army Bombing Planes

By Herbert Hanley

RATHER than leave the testing of Army bombers which fly at stratosphere levels to the uncertainty of "cold room" testing alone, the aeronautical research department of the Army Air Forces at Dayton, Ohio, is completing construction of a giant wind tunnel combining velocity and cold to exactly represent the sky 40,000 feet above the earth.

Many famous manufacturers, such as Boeing, Republic, North American and Bell, have set up refrigerated laboratories for high altitude testing of their products. However, since these duplicate only the cold of the stratosphere without regard for the stresses which speeds over 400 miles per hour bring, results are only partially satisfactory. In the new Wright Field installation, both velocity and cold will be factors, and anything which passes this test is ready for duty at any height.

The tunnel is arranged in a circular form in one of the main research buildings, and subjects scale model airplanes to wind velocities of 600 miles an hour and more. Through a combination of physics with refrigeration, it is possible to deliver this rush of wind at temperatures exactly held at any point down to 67 degrees below zero (Fahrenheit) and even colder. Any proportion of wind and cold, through delicate controlling thermostats and valves, can be reached.

Construction of Tunnel

The tunnel is constructed on a concrete form (completed recently) and will combine wood, steel, plastic and insulation to house the thunderbolt of kinetic energy involved. Interesting models, these will be placed on special metal mounts in the constricted neck of the tunnel, while hermetically sealing doors are closed, and vacuum pumps used to reduce interior pressure to whatever atmosphere point corresponds with the desired stratosphere altitude. Heavy dead-air insulated plate glass windows in the side of the tunnel will enable Air Force engineers to see whether their models disintegrate or stay serviceable under this strain. With the pressure inside down to 2.7 from the normal earth-surface atmospheric rate of 14.7 pounds per square inch, many of the models refuse to function and are not safe to fly.

The tunnel's length is 600 feet, through which a 40,000 horsepower electric motor (one of the largest in the country) drives via scoop-type fans the 600 mile per hour

blast. Air as drawn in is chilled to about ten degrees below zero by fin-type coils housed around the circular tunnel interior, and connected with two huge York refrigeration compressors circulating calcium chloride. At this temperature the air rides along the length of the tunnel to where it is squeezed suddenly down to a narrow construction in which the models are mounted.

Velocity and Temperature Affected

Here, both velocity and temperature are affected, speed increasing tremendously, and temperature dropping instantly to 68 degrees below zero at maximum. This construction method, averting the need for farther refrigeration, gives the fastest decrease in temperature possible, and maintains it easily during the test period, which is often several hours long. The load on the compressors is simply that of giving the initial chill which prevents friction from heating the air as it is whirled bullet-like down the tunnel. Four million cubic feet per minute at peak is the capacity of the tunnel.

New wing designs will be developed, as well as better methods of forcing fuel into carburetors as immediate results of the tunnel's completion.

S S S

NEW DECAL SIGN OFFERED TO SERVICE MEN

A NEW Decal sign is being placed on trucks and store windows of Detroit refrigeration service engineers which, among its other good points, calls attention to the fact that refrigeration service is "essential." These signs, sample reproduced below, are large enough to be readable at a reasonable distance and they make an attractive display, wherever they may be used.

Sample of new service sign designed by Detroit Chapter, R.S.E.S.

Many refrigeration service men have expressed a desire for a Decal large enough to serve as a refrigeration service sign on their cars or service trucks. This apparently fills the need for such a sign and it has the added advantage of impressing upon the public mind the fact that refrigeration service is one of the essentials of modern life.

The Detroit Chapter, R.S.E.S., has several of these signs on hand which they would like to dispose of. They are available for $1.00 each from B. G. Hyatt, Copeland Authorized Refrigeration Service, 9833 Grand River Blvd., Detroit, Michigan.

Freon as an Insecticide in the Army

AN interesting talk on the use of Freon as an insecticide to destroy disease-carrying mosquitoes in the different war areas was given at a recent meeting of the Baltimore-Washington Section, A.S.R.E. The speaker was Dr. L. D. Goodhue, senior chemist, Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture, who is located at the Beltsville, (Md.) Research Center. Dr. Goodhue is well known throughout Government and business circles as the scientist who, with his co-worker, Dr. W. N. Sullivan, now in the Army, developed the insecticide that has been so successfully used by our Army in the different theatres of the War.

He began by discussing the older forms of insecticides which require a mixture of oil to produce mortality. Most sprays of this type settle completely in about two minutes. To increase its effectiveness, the insecticide must be kept in the air for longer periods, which also multiplies the use of a given charge.

Applications Used

Various types of applying insecticides have been tried, such as power and steam sprayers, but Beltsville Research Center has tried an entirely new approach, namely, the suspension of the insecticide in air without the usual accompanying oil. This new suspension in air is known as "aerosol," a scientific term denoting colloidal suspension in air. Many experiments were made to find a non-inflammable carrier that would not decompose when exposed to heat. These experiments led to the use of Freon, which is a non-toxic, non-inflammable liquefied gas in which the insecticide pyrethrum and sesame oil can be dissolved. This combination is especially well suited for killing insects, though non-toxic to humans.

It is easily handled, ready for immediate use and a one-pound package will successfully fumigate a giant bomber 50 times and is equal in effectiveness to at least two gallons of the best fly spray, which reduces by about nine-tenths the previously required shipping space. The insecticide is particularly effective against mosquitos, fleas, flies, ants, wasps, gnats and fairly effective on roaches, one of the most difficult insects to exterminate. Only three seconds spraying per 1000 cu. ft. will kill every mosquito in the enclosure.

New Container Developed

Due to the well-known difficulty of holding Freon, it was necessary to carefully select a satisfactory holder. Dr. Goodhue and his associate, working closely with the Surgeon General's Office, U.S.A., called on the engineering skill of several manufacturers to design a container. The one adopted was designed by the Westinghouse Electric & Mfg. Co. and is made of steel. This container has been dropped 80 ft. on concrete and thrown into a high temperature furnace with no bad results. It is practically fool proof.

One of the most important uses of the bomb insecticide, as it is called, is in the extermination of mosquitos which cause malaria that has been known to immobilize entire armies.

Dr. Goodhue predicted a wide use of the device in peacetime also, particularly in the extermination of greenhouse pests in which case, methyl-chloride may be used as most greenhouse insecticides are toxic to humans anyhow.

Converting to Methyl Chloride

Another speaker was Henry G. Brandt, Application and Design Engineer of the Carrier Corporation, Syracuse, N. Y., who spoke on "Converting Refrigeration Systems from Freon to Methyl Chloride." Mr. Brandt presented a carefully prepared paper on this subject, accompanied by charts and figures dealing with this most important subject. He emphasized the importance of having the manufacturers of the equipment involved issue proper instructions for making the change and the equal importance of having the contractors closely follow such instructions.

Much interest was expressed in both of these papers by those present.

The Question Box

Readers are invited to send their problems pertaining to the servicing of household refrigerators and small commercial refrigerating equipment to "The Question Box."

PRESSURE CONTROL IN MEAT CASE

QUESTION 570: I am having trouble with a show case, or I should say with two show cases in a meat market. They are hooked to a York Model 25W condensing unit using Freon 12. The large case is 20 ft. long, 3 in. wide at the top, 36 in. wide at the bottom, 25 in. high inside. The small one is 8 ft. long with the same dimensions as the large one. Have but one glass.

There is ¾ in. iron pipe cooling coils in these cases. They have Alco thermostatic expansion valves; the sizes I could see as they are mounted too close to the end of the case; could not get a looking glass behind them so I could see what they were. They are connected to the cooling coils by a ⅜ in. copper tube. The large case has one loop of coil in the bottom of the case that the expansion valve is connected to, then it goes up to the top where there are three single pipe coils, and then back to the bottom of the case where there are 1½ loops of coil, making four complete loops of coil in the large case. The small case differs in the flow of the refrigerant in that it goes to the top coils first and then to the bottom, then to the compressor. There is only ½ in. copper tubing to carry the gas back to the compressor.

The trouble I am having is to get the cases cold without drying the meat out so much. In order to keep the box cold I have to set the pressure control to cut out at 5 in. of vacuum. I cannot get the coils to defrost at all without the cases getting too warm. What is the trouble, and how can it be corrected?

The idea that I have is that there is too much pressure drop in the ½ in. tubing. Is that right or not? I tried to get some ¾ in. tubing but the wholesale house said that there was none available for civilian use.

ANSWER: From your description, I am not able to determine whether the coils in the show cases are of the finned type, or are plain pipe coils. I am taking it for granted that they are bare pipe, and therein, I believe, lies your trouble.

It is quite possible that you are experiencing a considerable pressure drop through the half inch suction line, particularly if there is only one line returning from both display cases. If there is a separate suction line from each case, this half inch tubing should be large enough.

However, if the pressure drop was causing your trouble, you would have a very low suction pressure at the compressor, while at the same time a comparatively high temperature would be in the coil. In your case, however, you have both a low suction pressure and a low coil temperature. This leads me to believe that the square foot of surface in your coil is much too low for the load imposed on the show cases.

You may find it necessary to add several more lengths of pipe to these evaporators, in order to increase their capacity sufficiently to take care of the load imposed on them.

MOISTURE TROUBLES

QUESTION 571: In your publication, THE REFRIGERATION SERVICE ENGINEER, we have noted articles on sulphur dioxide jobs sticking or freezing the compressor. Recently, however, we talked to a private service man who had a methyl chloride job freeze the compressor and after being cleaned and recharged, a connecting rod broke. We will outline as well as we can what was done to the system.

As nearly as we can tell, the first call was for long running periods and lack of refrigeration. Gas was added and expansion valves were changed. Why the valves were changed, we don't know, although the owner claimed they were all working. A drier was also installed for about three days and then removed. It is not known what drying agent was used. Later, about nine ounces of Ice-X was added to the system.

About a week later, the expansion valves started to freeze up, and hot applications would free them, but only for a short time. A Silica Gel dryer was installed for about two days, but freezing continued. A calcium chloride dryer was then installed for about a month, during which time the valves froze

only occasionally. The system then seemed to operate O.K., but then suddenly the compressor froze tight. The compressor was found to contain a blackish-colored sludge which didn't seem sticky, but rather greasy. After cleaning the compressor thoroughly, adding a fresh charge of oil and gas, the compressor ran for one and one-half hours and then broke a rod.

The compressor was again found to contain an amount of the same sludge although new gas and oil had been added, the system cleaned with carbon tetrachloride and pumped down to 26"-28" vacuum, and all lines and the machine were heated with a torch before putting it into operation after the first freeze-up. The rod was then welded and another calcium chloride dryer was installed in the suction line to prevent further sludge from entering the compressor.

We have read of the dangers of calcium chloride going into a solution called calcium chloride brine, but have never noted any recommendations as to the number of hours or days it is safe to keep a calcium chloride dryer in a refrigerating system.

Would you kindly give us your opinion as to the probable cause of the freeze-up? Would you think it might be the chemical reaction of the Ice-X with the calcium chloride, or would it be calcium chloride brine? How many hours or days would you leave a calcium chloride dryer in the system? Would a heavy felt in the dryer prevent a calcium chloride solution from entering the system? The only information we have been able to find is that a calcium chloride brine causes corrosion. Would the corrosion cause a freeze-up or what would the corrosion do, and what action does it take?

The system is a Mills two-cylinder machine. The methyl chloride charge is about ten pounds. The calcium chloride driers contained about one-half pound of calcium chloride in the suction line, and one-fourth pound in the liquid line. The liquid line dryer is the one that was on for a month. The system refrigerates a walk-in cooler with a blower, a cube maker, also in the cooler, and a novelty box with blower. There are three expansion valves.

We had a Sparton Sulphur Dioxide freeze-up some time ago. The machine ran continuously and we had difficulty determining the cause of it. The serviceman finally tried a Freon charge with the same results. When we finally found the trouble, which was caused by the copper washer near the seal being chewed up, allowing the eccentric to partially turn on the shaft, thus shutting off the suction hole in the crankshaft, we recharged with sulphur dioxide. The machine ran perfectly for six hours and then froze tight.

In your opinion, what caused the freeze-up? Is there a chemical reaction between Sulphur and Freon which would do this? The same serviceman changed a Spartan (same type) to Freon and it has never given any trouble, although in the case described the change was from Sulphur to Freon and then back to Sulphur. We will greatly appreciate any assistance you can offer us.

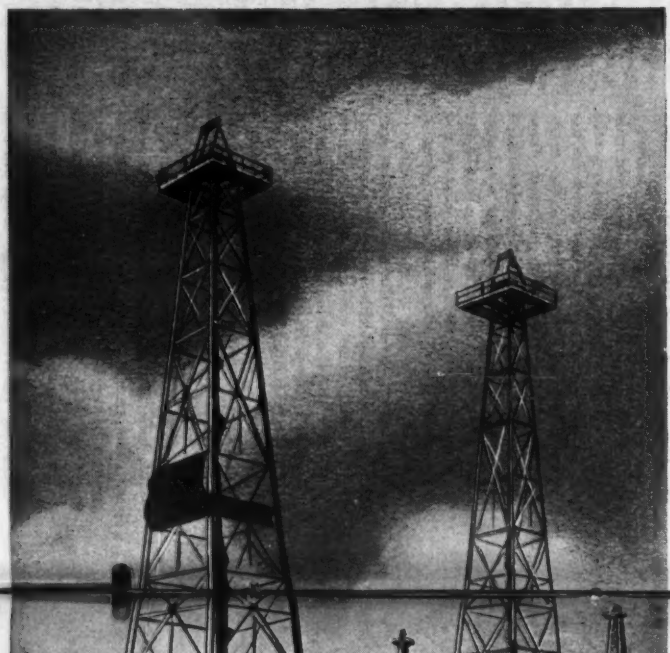
ANSWER: Sulphur dioxide will stick up much more rapidly than methyl chloride because the reaction between moisture and SO_2 is much more rapid. However, it is true that methyl chloride systems containing moisture will also stick up, due to the gummy substance formed. It takes a much longer period with these systems, and usually requires the addition of heat to cause the gum to form.

For this reason, you will usually find it in machines that are somewhat overloaded and have extended running periods. The heat is supplied by the higher head pressures and head temperatures. I believe your entire trouble with the methyl chloride job which broke a connecting rod is due to moisture in the system, and now that this gummy substance has formed and is circulated all through the system, it will be necessary to do a thorough cleaning job and recharging with fresh refrigerant and oil, before you can hope to overcome trouble. Alcohol is a good solvent for this gum, and it will be necessary to wash all the tubing and parts of both evaporator and compressor in alcohol in order to remove the gummy substance.

Calcium chloride which has gone into solution forming calcium chloride brine will usually deposit calcium chloride powder at such points as the expansion valve needle seat and other small openings or screens where it will restrict the flow of refrigerant. Once it has been permitted to circulate through the system, it is difficult to remove without a thorough washing and cleaning because the walls of the tubing and evaporator will very likely be coated with this white deposit.

The length of time it is safe to keep a calcium dryer in the system depends entirely on the amount of moisture in that system, and because you do not know how much moisture there is when you start drying the

It's time to tell about REFRIGERATION'S "hidden services"



Take

OIL

for instance . . .

REFRIGERATION HAS HELPED the great petroleum industry solve some of its most perplexing problems, and plays a vital role in delivering the millions of gallons of gasoline, kerosene and lubricating oil to our Armed Forces and our immense National Transportation System.

THE COMPLETE STORY of Refrigeration's great contribution to this [illegible]ry would take a good-sized book, fo[illegible]rigeration enters practically every operation, from

A-P 220K
THERMOSTATIC EXPANSION
VALVE

THE COMPLETE STORY of Refrigeration's great contribution to this industry would take a good-sized book, for Refrigeration enters practically every operation, from the time crude oil comes from the ground to hundreds of phases in refining, distillation, fractionation, rectifying, deasphalting, dewaxing, and many others.

FOLLOWING CLOSELY the improved techniques in Oil and Gasoline Refining, A-P DEPENDABLE Refrigerant Controls find ready service in many phases of the Industry's use of REFRIGERATION. In this Industry, as in many others, research men are making full use of the aid offered by the A-P RESEARCH DIVISION in perfecting new products, new controls for ever greater mechanical efficiency.

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DEPENDABLE
REFRIGERANT VALVES

system, it is advisable to remove the dryer after the first twenty-four hours for inspection. If it indicates little moisture has been absorbed, a new one should be installed which could be left in place for forty-eight hours.

Upon inspection of this, if there is little indication of moisture, it is probably safe to leave the dryer in for several days. In other words, you must be entirely guided by the condition of the dryer when inspected as to how long a new one can remain. I think the cause of your freeze-up is moisture in the system, and could not be blamed on the Ice-X or the calcium chloride brine.

In the case of the Sparton refrigerator, the freeze-up again was probably due to moisture, and the moisture most likely was permitted to enter during the service operation of changing to Freon, then back to sulphur. Incidently, I don't think it is a wise procedure to charge these systems to Freon because in doing so, you are increasing the capacity of the unit, and in turn, overloading the motor. In addition, you are exerting a great deal more pressure on the compressor seal which may cause it to wear out more rapidly, or to immediately spring a leak.

G.E. RUNS HOT

QUESTION 572: I should appreciate your counsel on a refrigeration problem which is somewhat perplexing. We have a ½ hp. G.E. condensing unit operating with Freon, and self-contained in a 60 ft. reach-in. Besides this, the same unit runs a 4 cu. ft. butter box, which is situated about 15 ft. from the unit. Both boxes have blower coils. The G.E. unit is Type 3-M-65-D, and also carries a number G.E.—J-425.

The above set-up had been operating satisfactorily for the past three years. Recently, we had to overhaul the compressor and discovered the suction valves gone, apparently pounded to pieces and carried away in the system. After the overhaul, the unit did not operate as previously. When we replaced the front panel to conceal the unit, the compressor built up a head pressure of from 190 to 220 pounds, and the motor would stall. This occurred when the unit started up again after the off-cycle. We checked the condenser and the receiver and found them to be free.

We put on a larger fan and a smaller pulley. The original pulley was 5 in. in diameter and the compressor flywheel was 9½ in. in diameter. The change seemed to lower the head pressure to around 150 to 160 lbs., but when we replaced the panel, the head pressure came back and stalled the motor. The door gaskets were found to be all right. The outside temperatures average around 75 degrees F. The unit is somewhat small, being a stepped-up job, but the customer says it has operated satisfactorily for the past three years and cannot understand the difference in operation now. Any suggestions you might make as to the cause of the above situation would be appreciated. What would be your recommendation for this job?

ANSWER: From the information you have given me, I am unable to see anything wrong with the G.E. unit, other than the usual possibilities of such things as: an overcharge of refrigerant, dirty condenser, improper air circulation through the condenser, partially clogged screen at the receiver outlet valve and other such things of this nature.

I take it for granted you have checked all these and can find nothing wrong with their condition. Otherwise, the only possibility I can see is that since you find this to be a stepped-up unit, it may be that the condenser is now too small for the capacity of the compressor. I take it for granted this is an air cooled compressor, and the air circulation through the condenser, when the front panel is closed, is none too good.

Assuming that all operating conditions are beyond improvement, I would suggest that you install a heat exchanger between the compressor outlet and the condenser inlet, through which you can circulate water—thus, aiding the condensing capacity of the unit. It is quite possible that this auxiliary water cooling would not have to be used all the year round, but only at such times as the ambient temperature rises sufficiently to overload the unit.

WESTINGHOUSE FAN DOES NOT RUN

QUESTION 573: We went out to service a household Westinghouse electric refrigerator, Model J5, Serial 3590405, Style 973005F and found that the fan wasn't working, naturally causing the refrigerator to get hot, causing it to stop and the refrigeration was poor. We ordered a fan motor and put it on, but had the same results as with the old motor. Three wires lead to the fan. Is there any fuse, relay, etc. in series with the fan wire?

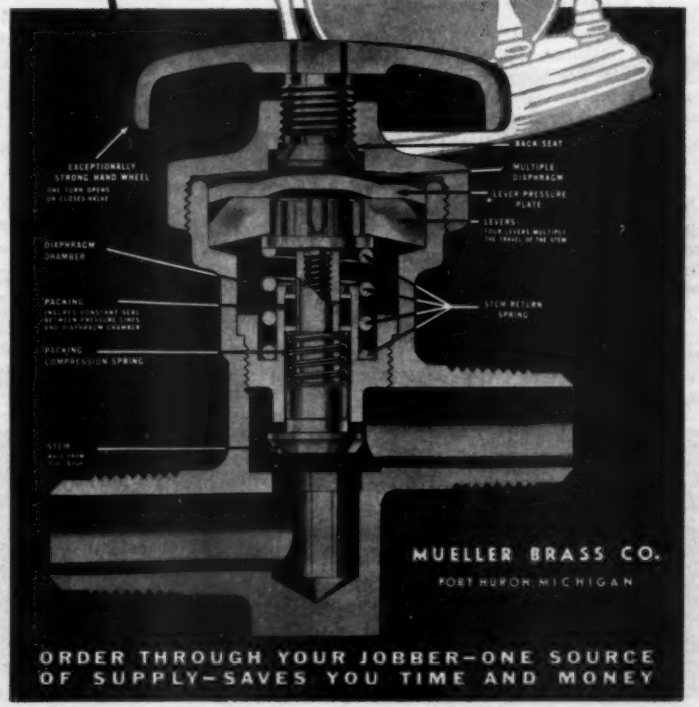
ANSWER: I am inclined to believe that your difficulty with the Westinghouse refrig-

Increased DIAPHRAGM LIFE PROLONGS THE SERVICE LIFE OF THE VALVE

● Because of the small amount of movement, the multiple diaphragm in our Triple Seal Valve is never deflected past its normal center, thus immeasurably prolonging both its life and the life of the valve in service.

This valve has positive sealing at three essential points—a back seat with valve in open position—the multiple diaphragms—and the superior packing around the stem. This packing assures constant seal between pressure lines and diaphragm chambers.

One turn only completely opens or closes the valve.



ORDER THROUGH YOUR JOBBER—ONE SOURCE OF SUPPLY—SAVES YOU TIME AND MONEY

erator is in the relay. The fan motor on these units is a two-phase motor, operated from and connected to the main motor windings. The fan motor will not start until the relay coil contacts are open, and the motor is up to full speed to supply two-phase energy. It may be that the relay contacts are not opening properly.

REFRIGERATORS MAY BE MADE AGAIN IN 1944

ACCORDING to *Retailing Home Furnishing* of New York, there is some reason to believe that manufacturers may be in limited production of at least one model refrigerator in the second quarter of 1944. This prediction is based on discussions of Washington officials, not only in charge of civilian requirements but those concerned with war production.

The whole situation is still in an extremely tentative stage that is subject to many changes and at present conditions are not such as to afford justification for any conclusive assumption.

There have been some recent reports that production of essential civilian items made of metal would be permitted by WPB. However, a WPB spokesman has stated that because fourth quarter allowances of critical metals have been made and the last allotments are final, there is no hope of an increase in the production of electrical appliances now. However it is a "possibility" for next spring.

If refrigerator production is resumed, it is pointed out, those made will be used primarily for essential housing requirements with other civilian demand getting the leftovers, if there are any. The probable resumption of refrigerator production is based upon a number of factors. Among the most important is the presence of consumer demand which continues to express itself as demanding relief from the refrigeration problem. While ice refrigerators helped a lot to meet the demand this summer, reports indicate that in some cases they were not satisfactory due to the inability of consumers to get adequate and regular supplies of ice.

Another important factor is the increasingly serious war industry manpower shortage in many sections of the country. One of the chief bottlenecks of the manpower problem is lack of housing facilities. Apart from more houses themselves, the next most vital consideration is an adequate supply of essentials like refrigerators. It is pointed out, therefore, that even if some types of war production have to be temporarily curtailed to produce this essential household equipment it would be worth while doing so because it would then be possible to curtail the war production handicap.

At the present time it is estimated there are only about 100,000 out of the original 700,000 refrigerators left in the stockpile of finished mechanical refrigerators which were frozen by the Government soon after the war began. On two occasions WPB released about 100,000 of these refrigerators for distribution through regular retail channels. However, those that remain are primarily in the large size and deluxe price brackets and they are not likely to offer a solution to the problem.

Reports that limited production of refrigerators may be permitted were bolstered somewhat when manufacturers received a letter from a Washington agency asking them how soon they could resume production and how many refrigerators they would be able to make during the months of October and November. Although the writer of that letter was apparently unfamiliar with the huge task of reconversion with which refrigerator manufacturers would be faced, since virtually all of them are wholly in war production, the letter did serve to add further weight to the belief that there might be something to the reports in question.

MERCHANT MARINE NEEDS MEN

EACH day the task of the Merchant Marine increases. Each new invasion and each newly launched ship call for more skilled men. The fact that over 10 billion tons of agricultural produce alone have been carried by the Merchant Marine to the United Nations since Pearl Harbor shows in part what a tremendous task it has accomplished. The amount of war material transported is still a military secret.

More men are needed. Preference is for experienced mates, engineers, A.B.'s, and cook-bakers, but men with mechanical aptitudes, such as refrigeration mechanical engineers, can fill needed posts. They are asked to write the Recruitman Manning Organization, Washington, D. C., or get in touch with their United States Employment Service Office.

THAT "RECALIBRATOR" tells you two things about a gauge

1. GREATER ACCURACY AND STAMINA

When you find a gauge with the "Recalibrator" you've found a gauge that has behind it 75 crowded years of improving and perfecting gauge construction. Such a gauge offers the utmost in accuracy and stamina, with an outstanding service record to show how well it will meet today's greater responsibilities.

2. ACCURACY IS LOCKED IN

Nobody has ever found a way to build a gauge that can't be knocked or jolted out of adjustment. But Marsh has found the one basically sound way to correct such a gauge. A twist of the "Recalibrator" screw is all it takes, and the gauge is accurate again at all points on the scale. Unlike the ordinary "adjustment," the "Recalibrator" strikes at the root of the error—actually recalibrates the gauge by reestablishing the proper relation between the bourdon tube and the movement.

The "Recalibrator" is available on all Marsh Gauges, standard on all Marsh Dial Thermometers. You'll find the same kind of outstanding features throughout the broad Marsh line. Write for the big Refrigeration Catalog.

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Refrigeration Instruments

FREON SHORTAGE WILL CONTINUE

AT a recent joint meeting of the General Refrigeration and Air Conditioning Industry Advisory Committee of the War Production Board and the Industrial Refrigeration Industry Advisory Committee, it was stated that shortages in the supply of Freon 12 will continue for some time. Some relief will be provided when a new plant for production of Freon is completed in February, and it is possible that another plant may be erected.

Based on existing commercial and industrial refrigeration and air conditioning equipment, the Task Committee appointed to investigate civilian requirements for Freon 12 presented a preliminary report. This report indicated that civilian requirements for 1944 will be about 11,400,000 lbs. To make up for the deficit incurred during the second half of 1943, approximately two million pounds should be added to that figure. For 1945, civilian requirements were estimated at 18,000,000 lbs.

CANADIAN SERVICE MAN REPORTS 700 MILE SERVICE CALL

A LETTER has been received from Ole B. Lund, one of the members of Mile High Chapter, Denver, Colo. Mr. Lund, who is now in Canada, gives a very interesting account of his life "down North" as they say where he is located.

While they had been having snow there the middle of October and the nights had been pretty cold, they still needed refrigeration for a few weeks yet, according to Mr. Lund. The living conditions and the fact that they are pretty well isolated there (sometimes they do not receive mail for ten days) does not make it the most desirable place in which to live, but he says he would not have missed the adventure for anything.

He has flown as far north as Fort Simpson, 300 miles south of the Arctic Circle, on repair jobs on portable refrigerators in transit on the lake and river. The plane is equipped with floats most of the time, and since that country up there is nine-tenths lakes and rivers, the hazards of a forced landing are not so great except that after landing the flyer might starve to death or be eaten up by mosquitoes. The snapshot reproduced below was taken on a 700 mile "service call."

O. B. Lund ready to take off on 700 mile service call.

TECHNICAL SCHOOL OPENS CLASSES IN REFRIGERATION

IN response to an increased demand for competent refrigerator repair men, the Danville Technical School, Danville, Va., continued its training in this field by opening a third class on October 11, according to an announcement by Gordon H. May, director of the school.

This class will be under the direction of Ernest Whittle Moon, who has had 14 years' experience in the installation and servicing of all types of refrigerators. Mr. Moon is a factory trained service engineer. The class will meet Tuesday and Thursday evenings at 7:30 and will continue for 20 sessions.

KEEPING WORKERS FROM GETTING HURT

(Continued from page 24)

7. Make sure of your footing. More construction workers are killed each year by falls than in any other way.

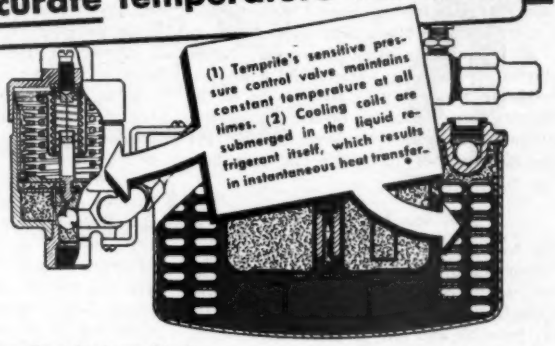
8. Use life belts, goggles, hard hats, or anything else that will make your job safer for you.

9. Make sure your fellow worker understands what you are going to do. Misunderstandings may get you or somebody else into an accident.

NEW REFRIGERATOR SERVICE

THE Hein Brothers, John and Ed, have opened a refrigerator repair service at 311 East 55th St., Kansas City, Mo., under the name of the Brookside Refrigerator Service Co. They have been with refrigerator repair shops for the past 15 years.

Here are the reasons for *Temprite's* high operating efficiency and accurate temperature control


(1) Temprite's sensitive pressure control valve maintains constant temperature at all times. (2) Cooling coils are submerged in the liquid refrigerant itself, which results in instantaneous heat transfer.

CROSS SECTION VIEW OF *Temprite's* INSTANTANEOUS WATER COOLER MODEL 22 W

The special design cooling coil submerged in the liquid refrigerant is an exclusive feature of all Temprite cooling units. This feature allows the heat of the liquid being cooled to pass directly into the main body of the refrigerant. This results in instantaneous heat transfer which is the reason for TEMPRITE'S high operating efficiency. This unique design also accounts for the unusually high capacities of these relatively small, compact Temprite units and is the reason why the unit has a very high overload safety factor and extremely quick recovery from a temporary overload.

Temprite's sensitive control valve adds to the units efficiency by eliminating fluctuations in the exit temperature of the liquid being cooled.

This design and construction are exclusive Temprite features which make Temprite coolers famous for their economy of operation.

★ *Sizes* ★

A model available for every application. The Temprite line consists of 12 standard models ranging in capacity from 4 gallons per hour up to 2200 gallons per hour.

ATTENTION Dealers!

Temprite coolers are approved by our armed forces and are being used by them. These units are also available for dealers and distributors on authorized orders and orders direct from our armed forces. Write our Sales Department today for complete details.

Applications

1. Photographic and x-ray solution bath cooling units.
2. Drinking water coolers for all essential requirements.
3. Water and liquid cooling units for industrial applications.
4. Chemical cooling — acids, caustics, etc., for both laboratory and manufacturing applications.
5. Low temperature brines for testing and special manufacturing.

TEMPRITE PRODUCTS CORP.

Originators of Instantaneous Liquid Cooling Devices

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Manufacturers and Jobbers Meet

A TONE of optimism in regard to future operations was one of the principal characteristics of the French Lick meeting of the refrigeration equipment manufacturers and supply jobbers held on October 28 and 29. Numerous problems remain—while material supplies are easier, the manpower situation is tightening in all sections of the industry. Yet everyone is becoming more accustomed to wartime problems and they are being met with less confusion and more long range planning.

Parts for Maintenance

On the subject "Will WPB or Office of Civilian Supply Be Able to Assure More Parts for Refrigeration Maintenance and Repair," Sterling Smith, WPB chief of the Refrigeration and Air Conditioning Section, made one of the shortest speeches on record. He said "Yes." He went on to point out the better parts and supplies situation now existing under Amended Order P-126. Calling attention to the broad application of this order to all bona fide refrigeration service men and organizations, he emphasized the high preference ratings extended for maintenance and repair work.

Principally because of manpower shortage, the manufacturers are not finding it easy to secure their component parts and subassemblies as needed. Mr. Smith, however, offered assistance of the Refrigeration Section to all divisions of the industry in meeting the problems brought on by this and other situations.

There will not be so much of the "patch and pray" work in 1944 if the hopes of Fred Smith, chief of WPB Special Equipment Branch, are realized. Responding to the question, "Will civilians be able in 1944 to purchase more or less refrigeration equipment?" Mr. Smith declared that WPB contemplates more replacement of badly worn equipment during the coming year. On this basis it would not be necessary for service men to attempt to keep all present equipment in operation regardless of the cost required to accomplish this. The War Food Administration, as well as the Office of Civilian Supply, are giving considerable study to the problem of maintaining essential refrigeration equipment in satisfactory operating condition. The work of these agencies along with WPB substantiates expectations of improvement in equipment supplies despite the ever present manpower problem.

Representatives of the various product groups among the manufacturers held meetings on the first day of the convention. Reports of the conclusions drawn from their studies were presented in the joint meeting which followed. Their detailed analysis showed deliveries ranging from four weeks to four months depending upon the particular product. It was apparent that there has been no significant change in the backlog of orders since the spring meeting of these groups, despite all the efforts the manufacturers had expended to secure more rapid handling of industry requirements. On the other hand the jobbers have become more accustomed to the situation through their work in recent months and are better able to take up the slack between the manufacturers operations and the ultimate supplying of the parts and equipment to the service organization.

Refrigeration War Council

The work of the National Refrigeration War Council was reviewed by John Wyllie, Jr., chairman. He described the manner in which the individual segments of the refrigeration industry had been coordinated through the Council into a representative unit of the industry generally. The Council is made up on a voluntary basis of the presidents of the various trade associations.

The central objective of the War Council has been accomplished in that it has aided in the solution of specific problems facing the industry, and has secured Government recognition of the essentiality of refrigeration during wartime.

Mr. Wyllie reviewed the plight of the American public in connection with refrigeration service. A breakdown in these operations was threatened and the War Council devoted its efforts in an attempt to forestall the threatened situation. After intensive work with Selective Service headquarters and other Government bodies, a three months' blanket deferment was obtained for

An "Eighth Day" . . .

. . . for Thinking

JUST as research and planning had to precede 24-hour day and 7-day wartime production, so adequate groundwork must prepare the way for intelligent reconversion in the peacetime days ahead.

Better start now devoting an "eighth day" to thinking of postwar refrigeration.

Its potentialities are virtually limitless . . . improved domestic refrigeration . . . frozen food handling . . . sub-zero industrial applications . . . new materials, processes and skills born of the war . . .

Truly, an amazing and alluring prospect!

On *your* "eighth day" of thinking, remember—as always—that Chieftain engineers and technicians are ready now to help with any refrigeration problem—present or postwar.

Chieftain

TECUMSEH PRODUCTS CO.
TECUMSEH • MICHIGAN

refrigeration service men. Additional assistance will be needed to meet the demands of the next season successfully. For this reason the War Council was requested to recommend a committee to handle training of replacements for those service men leaving the industry for the armed forces or direct war production.

Accordingly the Refrigeration Service Manpower Committee was formed with W. R. Kromer of Cleveland as director of training to work with the War Manpower Commission. As now set up, the training program is based on local action in critical areas. Under the plan, the Government would furnish the training texts and would pay the instructors who would conduct the classes. The source of the trainees is not yet fully determined, but Mr. Wyllie pointed out that it is necessary first to set up a concrete plan of procedure. Then any actual application of the plan can be carried forward through the cooperation of the various segments of the industry on a sincere basis. He cautioned against a false feeling of security because the summer season is past. Actually, the manpower situation will deteriorate before improvement can be definitely expected, and steps must be taken well in advance to meet the future demands.

On a direct question from the audience, he replied that where training schools are now in operation, they can be used under the present plan.

In conclusion, he invited the members of the industry to present their problems to the War Council, which is anxious to do everything possible to assist the industry in maintaining its wartime operations on the most effective basis.

The Post-War Jobber

On the subject of the Post-War Jobber, H. W. Small, vice-president of the Jobbers Association, gave a penetrating analysis of present and future operations in that field. Regarding refrigeration service organizations, he declared:

"The dealers and mechanics in the field have had the least benefit from war prosperity, and the most difficulty to overcome. Most of us have looked out for ourselves first and expected the other fellow to do the same. Unfortunately, the dealer and service organizations were least able to do so, through no fault of their own. I have little in common with those who look upon the serviceman, be he 'back alley,' independent, or just a mechanic on someone else's payroll, as an inferior being who is necessary—yes—but not too important.

"I hear talk about how the industry developed the serviceman. Yes—perhaps they did develop some, but I don't recall their developing any for purely educational purposes. I'd say the serviceman developed in spite of the industry, and then took a very great part in *its* development. Many hundreds were self-educated the hard way and had to bootleg parts to remain in business. They were chased from the holy temples and banned from the market places.

"Yet, today, these men are respected members of the industry. They grace the conference tables of the RSES, the NRSJA, and REMA. They are respected dealers and distributors of those same organizations who formerly cast them out.

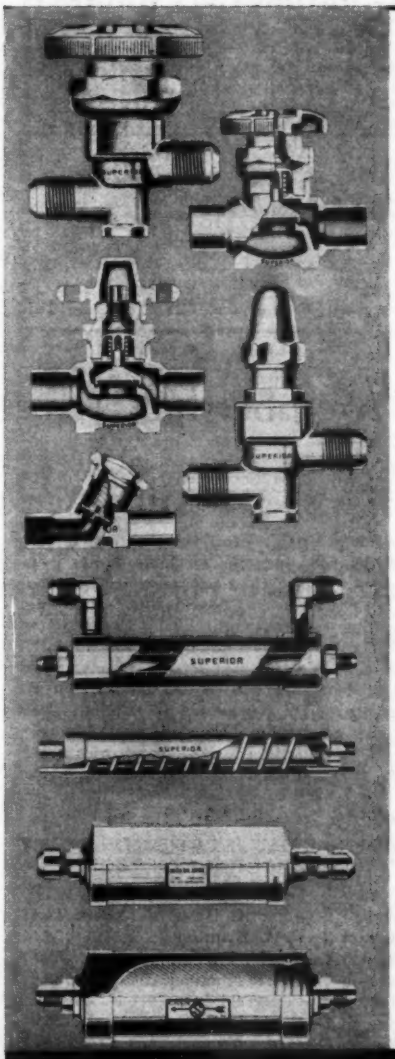
"Many men now working to service our equipment will move up to take their places at these same tables in the near future. They will be those who anticipate and adapt themselves to their post-war problems.

"If changing equipment designs lessen the work of installing, if repair work begins to sag temporarily, the serviceman need not feel discouraged. Many a man has been kicked upstairs, and this may be his opportunity. No one has as great an opportunity as the serviceman to gain the confidence of the user of refrigeration equipment. He is often the first to learn of the customer's plans for expansion. He often sees a need for additional equipment before the customer is aware of it. Some servicemen are handicapped by the lack of sufficient knowledge to properly engineer a commercial job. they may lack the confidence to attempt a sale. To such a man, the post-war development of self-contained units may be as manna from Heaven. He can look to the future with the utmost confidence if he will but take advantage of his opportunities. There will be a place for every serviceman including those who have been newly trained while in the armed forces."

Industry Advisory Committee

The Refrigeration Industry Advisory Committee of WPB has now reached true advisory status where it can aid in the problems of both WPB and the industry, according to A. B. Schellenberg, member of the Committee, who reported on its accomplishments during recent months. On the various problems before WPB, the advice of the Committee has been solicited and given

(Continued on page 58)



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★ **PRESSURE CUP GLOBE VALVES** — ⅞" to 2⅛" sweat; ¾" to 2" F.P.T.

★ **PACKED VALVES, BACK-SEATING** — Hex. seal cap. Flare and sweat to ⅝"

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★ **LIQUID INDICATORS** — With seal cap. ¼" to ⅜" flare; ½" to 1⅜" sweat.

★ **DEHYDRATORS** — Refillable; 6 to 60 cubic inches.

★ **FILTERS** — 1 to 5 HP.; ¼" to ⅝" flare.

★ **HEAT EXCHANGERS** — 4200 to 36,000 BTU capacity.

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Refrigeration Service Engineers Society

Official Announcements of the activities of the International Society and Local Chapters appear in this department as well as articles pertaining to the educational work of the Society.

THE OBJECTS OF THE SOCIETY

To further the education and elevation of its members in the art and science of refrigeration engineering; for the reading and discussion of appropriate papers and lectures; the preparation and distribution among the membership of useful and practical information concerning the design, construction, operation and servicing of refrigerating machinery.

INTERNATIONAL HEADQUARTERS: 433-435 North Waller Ave., CHICAGO 44, ILL.

Preliminary Report on Membership Drive

AS WE go to press with this issue, the applications for membership to be included in the recent membership drive are still arriving at the international office. Final count cannot be taken until complete results are received from the Chapters, but on the basis of a preliminary count, some forecast of the winners can be taken.

The drive started July 1 and ended October 31. The country was divided into nine regions and a regional manager appointed for each. Quotas for each Chapter were established and prizes are to be awarded on the basis of the number of members secured over and above the quota. New Chapters formed during the drive would have a quota of five.

One prize of a $25.00 war bond was designated for the regional manager in whose territory the most new members are secured. Three prizes of $25.00, $15.00 and $10.00 respectively were specified for the first, second and third highest Chapters. On the basis of the preliminary count, Regional Manager Warren Farr is the winner of the $25.00 war bond with Clarence Buschkopf a runner-up. Youngstown Chapter is the first prize winner among the Chapters with the new Corn Belt Chapter taking a close second. San Diego Chapter takes third place.

Of exceptional interest are the results obtained by the Kansas City Chapter which had a campaign of its own the early part of the year, practically doubling its membership before the national contest started. They, nevertheless, extended their campaign making a worthwhile showing in the contest just completed. Taking into consideration the fact that this membership drive was conducted during the busiest summer in the history of the service field, the results were highly gratifying. The regional managers and the Chapters in their territories are to be congratulated on the fine work they have done.

REGIONAL RESULTS OF MEMBERSHIP DRIVE IN PERCENTAGE OF QUOTA

Region 1—William Marshall	15.6%
Region 2—John K. Bush	17.4%
Region 3—C. A. Brunton	73. %
Region 4—W. W. Farr	88.5%
Region 5—E. A. Summer	23.6%
Region 6—C. Buschkopf	55. %
Region 7—C. J. Doyle	33.3%
Region 8—R. C. Kimmel	76. %
Region 9—J. L. Driskell	42.4%

The drive was started under the direction of S. B. Garland, International Second Vice-President and Chairman of the Membership Committee. It was completed under the chairmanship of Willis Stafford, Warrenville, Ill.

Let U.E.I. TRAIN YOU FOR MORE EFFICIENCY— BIGGER EARNINGS

Here's how you can become a more efficient Refrigeration Serviceman—in your free time. Train yourself for BIGGER PAY through UEI's famous *Balanced Training Method.*

The Utilities Engineering Institute has scientifically developed a complete training program that will help you become a first class serviceman easily, quickly. This program has been carefully checked by prominent engineers and highly endorsed by thousands of successful students. It not only helps you earn MORE MONEY now, but prepares you for the better opportunities that are bound to become available after the war.

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So why not write TODAY for all the details on how you can train in your spare time to become a MORE VALUABLE Refrigeration Serviceman? UEI has trained men in refrigeration since 1927. It can SUCCESSFULLY train you, too. Write TODAY!

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EMPLOYERS!

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Illinois Refrigeration Service Engineers Hold Sixth Annual Convention

MEMBERS of the Illinois Association of the Refrigeration Service Engineers Society held their sixth annual convention at the Hotel Nelson, Rockford, Ill., October 16 and 17. Besides members of the State Society, International Association officers and representatives of manufacturers were present.

One of the features of the meeting was a general discussion of the loss of time caused by compressor and other parts manufacturers requesting receipt of defective parts before making shipment. The opinion was that many hours of refrigeration repair men were wasted because of this policy. It was pointed out that much time would be saved if they could certify that they would dispose of unusable materials themselves. It was reported that materials for replacement parts are coming through now better than they have in the past.

In a part of the first day's session devoted to general discussion, the meeting took on the nature of a consultation among manufacturers, jobbers and engineers. This discussion was very interesting as it represented the voices of the three divisions of the industry.

Entertainment

Entertainment was provided in the Crystal Ballroom of the Hotel the evening of October 16, and approximately 150 members and guests participated in the dance and entertainment.

The meeting on Sunday, October 17, was opened by Earl Seaton, president of the Illinois Association, and the feature of the morning session was a talk by E. A. Plesskott, international president of the R.S.E.S.

Mr. Plesskott summarized the activities and accomplishments of the International Society during the past year and dealt at some length with the manpower crisis of the past summer. In discussing the manpower shortage and the deferments obtained from the Selective Service Board for service men, he paid high tribute to the aid provided by the National Refrigeration War Council in obtaining this action and other considerations from various war agencies for the service group.

Enlarging the Association

At this session there was a very interesting discussion on enlarging the Illinois State Association to a Midwest or Sectional R.S.E.S. association. It was suggested that provision be made for a move of this kind so that Chapters outside of Illinois, such as Mississippi Valley and Madison, could have available the benefits of the present State organization.

Refrigeration men meet at Rockford. E. A. Plesskott, St. Louis, Mo., International President, R.S.E.S.; Leslie L. Sturch, president of the Rockford Chapter; and Herman Goldberg, Chicago, feature speaker on the convention program.

It was decided that local Chapters acting as hosts to the State convention should retain 25 per cent of any profits derived from the convention for their own use, particularly if they should decide to have a party for the Convention Committee members. This met with the approval of the members present because they felt that any Chapter providing a successful convention should be accorded special recognition and suitably rewarded.

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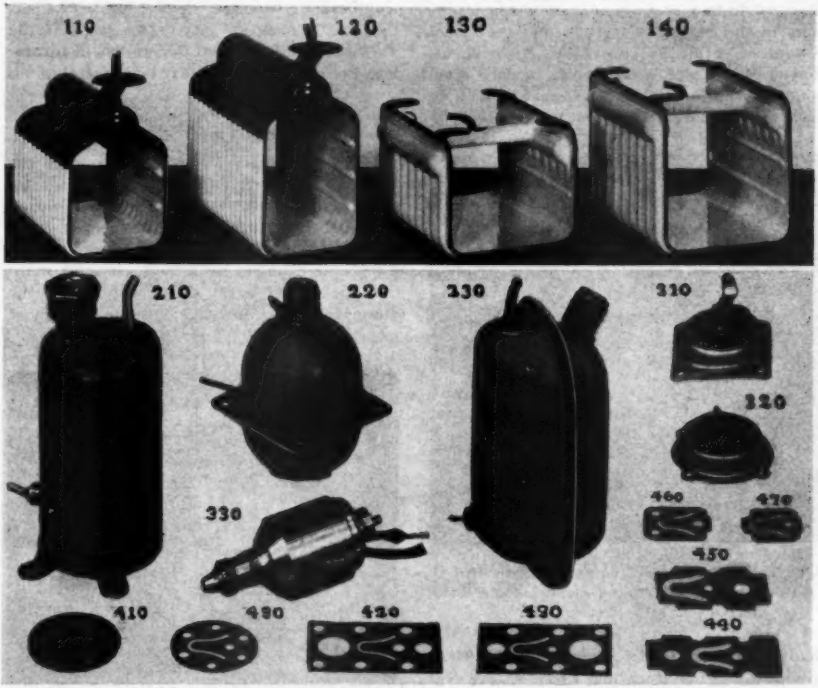
Used Evaporators and High Side Floats



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130—8½" w. 7½" h. 11½" d. ....
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In Good Condition and Tested

410—*Discharge Valve Plate*..... $1.10
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Resolutions

The report of the Resolutions Committee, which was adopted, recommended that the constitution and by-laws be changed to make it possible to incorporate neighboring Chapters in the State Association and that local Chapters acting as convention hosts be allowed 25 per cent of the profits derived from such conventions. Thanks were extended to the manufacturers, jobbers and others who

Convention delegates compare notes: Earl J. Seaton, Willis Stafford and Henry Jennis. C. J. Coyle in the background.

had contributed to the success of the convention, also to the Rockford Chapter, the National Officers, and the ladies of Rockford Chapter.

Officers Elected

Officers for the coming year were elected, as follows: *President,* C. Stumpf, Aurora; *1st Vice-president,* Archie Fait, Springfield; *2nd Vice-president,* Henry Jennis, Rockford; *Treasurer,* John Sakey, Springfield; *Secretary,* Meyer Axelrod, Chicago; *Sergeant-at-arms,* John Hamilton, Bloomington.

Approximately 125 people attended the luncheon prior to the opening of the main and second part of the day's business. A trio of musicians played entirely throughout the luncheon which was enjoyed by all. The Program Committee Chairman, R. C. McCarthy, presided at the speakers' table and introduced the various guests who contributed to the success of the convention. He also thanked the manufacturers, jobbers and visiting engineers for their attendance.

Afternoon Session

The afternoon session was called to order by Clarence Stumpf, newly elected president. Following an interesting address by Herman Goldberg of Chicago, Peoria was chosen as the next convention city. Delegates of the Peoria Chapter advised that they will formulate their plans at the next local meeting.

Refrigeration Service Now and After the War

In his address, Mr. Goldberg said the place of the refrigeration service men of today and their services in the refrigeration industry of tomorrow is one which concerns not only the refrigeration service men but all people engaged in the industry, for without the repair services, the utility of the manufactured product would have a short life.

Some of the ladies, too, have good times at the convention.

"We hear a lot about post-war planning and various post-war problems" he said. "Government and business are thinking of post-war plans for it is only through planning that we will be able to effect the reconversion of labor to peacetime applications. There will be changes in the industry with resultant changes for you after peace is declared and you have a number of problems to solve in order to obtain a prospective pertaining to long range planning.

"You are concerned about the new applications which will enter your field after the war and the people who will come with these new applications. You are concerned about the men who will want to re-enter the refrigeration service field. These men will be not only those who left to enter the armed services but also many being trained by the

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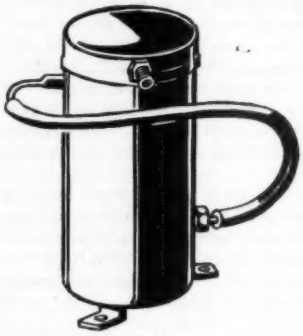

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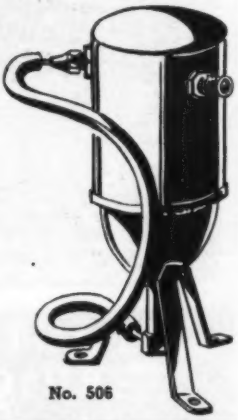

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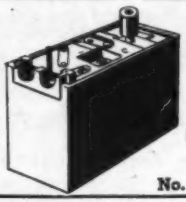

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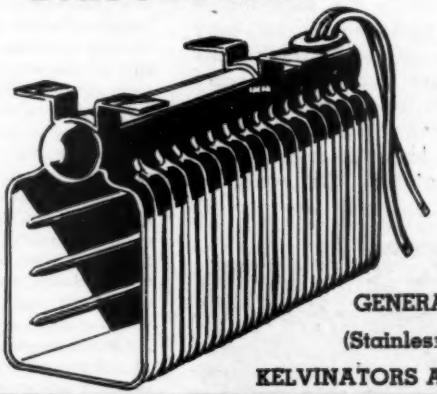

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Government for service on military refrigeration units. These latter men will have a knowledge of refrigeration from an army need but not of civilian applications.

"Following the termination of the war you will obtain most of the repair supplies you need. It is questionable whether you will be able to procure equipment such as compressors and motors for at least several months. It will take some time for the manufacturers to reconvert their plants for peacetime needs. It stands to reason then that there will be a tremendous amount of repair and re-installation work which is prohibited until the war is over. This business alone will more than keep every service man busy.

"Add to this work the flood of business which is bound to come your way when high-sides as well as other heavier equipment are again available to you by the manufacturers, which will keep you busy for a considerable time after peace is declared.

New Developments Coming

"The question as to how far the service men can perform their duties in the newer developments of the industry of tomorrow will be answered largely by the means which you take to educate yourselves to new developments and your willingness to take on new obligations in the field.

"If you are satisfied to continue as repairers of present equipment there will be no need for further education, but if the service men are to keep pace with the new equipment, it will be necessary to learn more about the newer applications and newer developments. There is a dire need of greater education for all refrigeration repair men throughout the industry. It will be necessary to have increased educational facilities not only for those who are now actively engaged, but also for those who will want to enter the field.

"Industry has learned to use refrigeration to expedite its manufacturing of war armament. Through the use of these applications these men have learned to apply our industry to their own and when they return to their individual pursuits, they undoubtedly will use many of the new ideas.

"There are many uses of refrigeration in industries such as oil refining, the rubber industry and numerous others which haven't used it in the past. These new applications aren't generally known to us. Undoubtedly they will remain after the war. It will take

the service man of tomorrow to maintain this equipment, and he will need all knowledge obtainable.

"Equipment for apartment buildings, city homes and farms will demand more of your services, as will the steady growth of the farm market for milk coolers, locker plants and freezer systems. In considering new industrial applications, do not neglect to remember the constantly enlarging food industry.

"The building industry has extensive plans for new housing after the war, including residences which will have air-conditioning systems for rooms as well as the complete houses; apartment buildings which will have air-conditioned apartments. Kitchens will be streamlined and the refrigeration systems will be built for low and freezing temperatures, as well as normal temperatures. These systems will have many new innovations in mechanical constructions and outward design. The service and installation man will find a new field in many phases of this new activity.

New Markets to Open

"The average life of commercial equipment usually runs about six years. Add the two years we have been without new commercial equipment to the time which will elapse before peace, and it stands to reason that the market for new equipment will be tremendous.

"Many other industries will make use of freezing and cooling processes and we in turn will benefit from this enlarged field, not only in service but also in wider employment of refrigeration service engineers. Future refrigeration equipment will require continued education to keep you abreast of the times. I strongly urge that you enlarge your educational activities.

"The question is whether the refrigeration service men are capable of accepting the challenge of the refrigeration industry of tomorrow. Are you prepared to educate yourselves to the applications which will come? Are you prepared to absorb the men of your own ranks who will return to your field, as well as those others who will want to make the refrigeration industry their livelihood?"

Following Mr. Goldberg, an interesting extemporaneous talk was given on "News and Views" by G. E. Graff of Ranco, Columbus, Ohio. The meeting came to a fitting close with a report on new membership by Clarence Buschkopf, International Vice-president.

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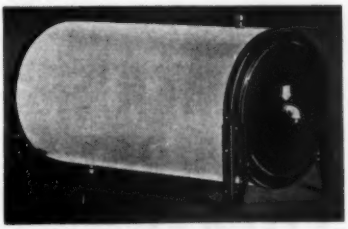

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Tank Units, such as the Model CE-25 shown above, save space and are easily mounted on walls or ceilings or under counters. Under proper qualification, they can be supplied promptly in storage capacities from 2 to 25 gallons.

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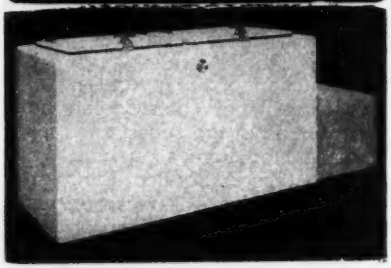
FARM LOCKER PLANT



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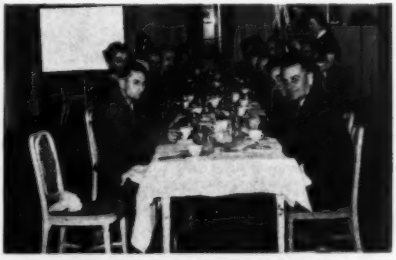
AFTER THE WAR

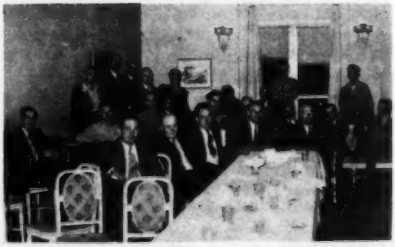
R.S.E.S. Chapter Notes

SAN DIEGO CHAPTER

October 14—Vice-President, C. E. Anderson, presided over this meeting held at the Solarium at the Park Manor. Introductions were the first routine of the evening. There were many visitors present, together with former members, who are returning to the Society. Among these were: Merle Wampler, D. E. McComas, Otto Williamson, W. L. Gibson and Robt. Doane.

Next on the schedule was a most enjoyable turkey dinner with all the trimmings, which everyone seemed to enjoy to the fullest extent. Door prizes were drawn immediately after the dinner with Alvin Robinson drawing first prize, a year's dues; Mr. Gille drawing second, two R.S.E.S. binders and





A few views of the San Diego Turkey Dinner.

Mr. Davis drawing third, one R.S.E.S. binder. Mr. Steiner drew the fourth prize which was the Wrights Head-back Pressure Calculator.

The special guest of the evening was Louie E. Griffin from Honolulu, who accompanied Peter Askew, a member of the Chapter, both of whom were introduced by Mr. Anderson. Mr. Askew then proceeded with a discussion on W.P.B. regulations, clearing up much of the misunderstanding about the operation of these orders. Mr. Anderson then introduced Mr. Clark Chamberlain, Secretary of the Bureau of Radio and Refrigeration Dealers of San Diego County. Mr. Chamberlain talked about the man-power situation in the refrigeration industry, and outlined plans of the bureau to hold a meeting early in November at which they hoped to formulate some concrete suggestions to lay before the W.M.B. in Washington. The main purpose of these suggestions is to secure, if possible, further deferments for refrigeration service men by local boards. Mr. Anderson then showed an interesting film on Thawzone which the members felt was very timely.

PHILADELPHIA CHAPTER

October 21—The Chapter held a meeting on this date for the purpose of reorganizing its activities and laying out the plans for a future program of educational work; also at this time, the election of officers was held with the following results: *President,* Benjamin Barger; *Vice-President,* David Smith; *Treasurer,* James Keers; *Secretary,* R. E. Russel.

CLEVELAND CHAPTER

September 23—Joe Smylie presided over the meeting in the absence of the President and First Vice-President. In the roll call, it was noted that ten new members were attending their first meeting. Each was introduced and welcomed. During the business session, a suggestion was made and accepted by the membership that the Cleveland Chapter visit the Youngstown Chapter on October 5. It was felt that much good could be derived from such a visit and perhaps the members would learn the secret of the Youngstown Chapter's success in obtaining new members. Another suggestion was to the effect that the annual clam bake be held on or before October 17. The committee had been working on arrangements for this party and made a complete report.

The meeting then turned to a discussion of future educational programs, and as an incentive to more help from the membership

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Use HERVEEN and return the equipment to effective operation quickly.

SAVE TIME—HANDLE MORE CALLS by using the gas produced especially for the job.

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When HERVEEN is placed in stock and on the trucks of a refrigeration contractor, call-backs are much reduced.

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Most jobbers stock HERVEEN—but if yours doesn't write direct to

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itself, the Chapter will offer prizes for the best papers and best presentation on each of the following educational programs. Additional prize money for such a worthy idea was offered by Mr. Al. Fenwick, Walter Wright and President George Baumgardner. The members voted to remember all their membership now in the armed forces by sending them a Christmas package.

MILE HIGH CHAPTER

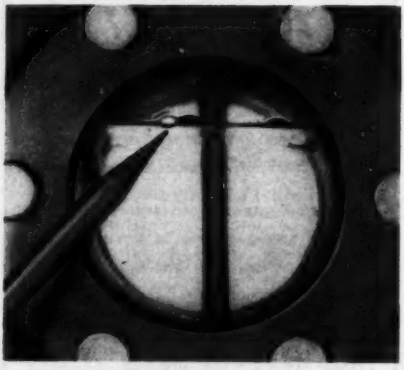
October 11—Among the correspondence read by the Secretary following the reading of the minutes was a letter from Sergeant H. T. McDermott, now serving in the Southwest Pacific. There was also a letter from a former member, Ole B. Lund, now in Canada, and former member A. C. Darby, now in the navy. Nine new applications for membership were presented and all accepted by the examining board. Mr. McCombs provided a resume of the latest priority orders and spent some time answering questions. Everyone seemed to be much happier about the revised order P-126. T. E. Ericson provided a discussion on Gibson units. The information he provided was considered most interesting and educational. Ernie Hall volunteered to give a demonstration of soldering aluminum, and to the amazement of everyone, he gave a perfect demonstration of how it could be done successfully. Nearly everyone crowded around him following the demonstration to secure his formula and ask further questions. Refreshments were served following the meeting.

MADISON CHAPTER

September 9—Vince Sweeney reported difficulty in obtaining help on his picnic committee, so a new committee was appointed from among those present, who agreed to meet at Vince Sweeney's store to complete plans already under way. Some discussion on ways and means of obtaining attendance prizes to be awarded at regular meetings resulted in the following plan being agreed upon. Each one present would contribute 25c at each meeting. The total amount collected would then be awarded at the following meeting as an attendance prize. Only those who contributed to the collection would be eligible for the drawing—thus, making it necessary to be present at two consecutive meetings before a prize could be won.

October 14—A report of the picnic was given at this meeting which showed that no money was made, but the good time had by

THIS TRAPPED WATER CAN STOP A UNIT!



Above photo is from our color movie film "The Story of Thawzone," available for trade meetings.

Only THAWZONE can reach this Water!

Water often gets trapped in a system and can't get to ordinary driers. Result, it remains indefinitely—causes corrosion—and finally the unit stops. The only way to get trapped water is with THAWZONE—the *liquid* dehydrant which circulates thru the system—searches out water—and chemically destroys it, without harm to refrigerant, oil or parts. To prevent *any* water from forming, put THAWZONE into *every* unit before installing. Only 1/8 ounce, costing 10c, protects each pound of refrigerant. Write for literature.

• Ask your jobber for THAWZONE in the original Blue, Black and White label.

HIGHSIDE CHEMICALS CO.
195 Verona Av., Newark 4, N. J.

THAWZONE
Fully Protected by U. S. Patents
The PIONEER FLUID DEHYDRANT

all more than offset the financial status. Educational Chairman, Earl Davidson, reporting on his future programs, stated that he has a movie projector available and that the programs would consist to a large extent in the showing of educational films. W. E. Krause won the attendance prize for the evening.

KANSAS CITY CHAPTER

September 14—During the business session, the Chapter authorized the Secretary to purchase a $100.00 war bond in the name of the Chapter, and following along this general thought, pledges were received from members to buy war bonds totalling $2600.00. On the educational program, Educational Chairman Cox read an article on changing from Freon to methyl chloride and discussed at some length the precautions to be taken in making the change. Also on the educational program was a showing of the film entitled "Inside of Atomic Hydrogen Arc Welding." The ladies auxiliary were invited to attend this showing.

Ladies Auxiliary

TWIN CITIES AUXILIARY

October 5—This was a luncheon meeting and one of the first discussions was in regard to a joint pheasant dinner to be held with the men's Chapter at the November meeting. A menu was planned at this time with Mesdames Ost, Chairman; Palen and Swanson acting as the committee. The annual election of officers was held with the following results: *President*, Mrs. Chermak; *Vice-President*, Mrs. Klahn; *Secretary*, Mrs. Ost; *Treasurer*, Mrs. Holmes; *Sergeant-at-Arms*, Mrs. Lewis.

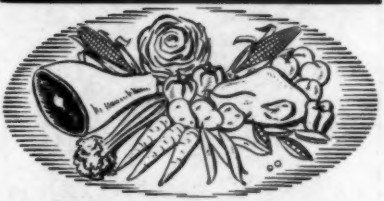
FRANCK RETURNS TO IMPERIAL

THE Members of Chicago Chapter have been wondering what has happened to George E. Franck of Imperial Brass in the past three years. He was conspicuous by his absence from the meetings and functions of the R.S.E.S. in which he was active since the very early days of Chicago Chapter. Now it can be told.

Since the outbreak of hostilities George was divorced from his refrigeration development, given the job of designing and producing fuel valves for British and American combat tanks and destroyers.

In February of this year he was released

Healthful Living Through
FROZEN FOODS



Tomorrow's Promise . . .
for Farm Families

FOOD FREEZING right on the farm—with the new BEN-HUR FARM LOCKER PLANT—will save time, money, and food for tomorrow's farm family . . . And give them healthful, enjoyable variety at daily meals—farm-grown meats, poultry, game, vegetables and fruits, the year 'round!

This new BEN-HUR FARM LOCKER PLANT will be important in your post-war selling plans. Remember it, when "V-Day" comes. It will be ready immediately for peacetime production lines.

. . remember . .

BEN-HUR

FARM LOCKER PLANTS

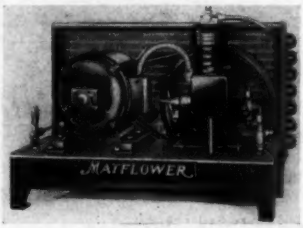
BUY YOUR WAR BONDS today . . . and YOUR LOCKER PLANTS after the WAR

ARMY (E) NAVY

Awarded to
BEN-HUR MFG. CO.
for outstanding achievement in War Production

BEN-HUR MFG. CO.
634 East Keefe Avenue
Milwaukee 12 Wisconsin

MAYFLOWER
UNITS AND PARTS



COMPLETE stocks of genuine Mayflower air and water-cooled Condensing Units, and all Mayflower Parts, are now available to meet your priority requirements. Service men, consult your jobbers, or write us direct. Jobbers, we solicit your inquiries.

MAYFLOWER
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13 S. 5th St.
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USE
VISOLEAK

Ally yourself with the Industry program of CONSERVATION.
SAVE refrigerant and time.
SIMPLIFY leak detection problems.

* * *

VISOLEAK shows you those "hard-to-find" leaks, and is successful with all refrigerants. Use four fluid ounces plus one ounce for each 10 lbs. of refrigerant to treat a system.

4 Ounce Size	$ 1.00
8 Ounce Size	1.75
1 Pint Size	3.00
1 Quart Size	5.00
1 Gallon Size	16.00

Buy it from your jobber or write direct to
WESTERN THERMAL EQUIPMENT CO
5141 Angeles Vista Blvd. - - Los Angeles 43, Calif.

by Imperial at the request of U.S. Army Ordnance at Detroit Tank Automotive Center to act as technical consultant. He served as a member of the fuel design group, comprised of the best engineering talent available from the various industries contributing to the motive power of our combat vehicles. It was the function of this group to simplify, improve, and design fuel systems and their components for all Army vehicles from the M-4 tank to the jeep.

It was significant that George was the only member of the group from the refrigeration industry. However, this cannot be considered peculiar, for who would be more familiar with piping and valving practice than a refrigeration man?

Having been recently released from his duties he is now back at Imperial and we can expect his presence in R.S.E.S. circles in the near future.

* * *

WOLVERINE TUBE ANNOUNCES PERSONNEL CHANGES

THE following personnel changes in the sales department of the Wolverine Tube Division has been announced by Otto Z. Klopsch, vice-president of Calumet and Hecla Consolidated Copper Company.

W. H. Maxwell R. F. Moody

W. H. Maxwell has been made general sales manager and will take up his new duties at once. For the present, he will divide his time between New York and Detroit, making Detroit his permanent headquarters after January 1, 1944. Since 1932 he has had charge of Wolverine's Eastern Sales Office at New York. He has been with the company for 13 years.

At the same time, Mr. Klopsch announces the promotion of R. F. Moody to assistant general sales manager.

BROWN NAMED DEPUTY DIRECTOR

RICHARD P. BROWN, chairman of the board of the Brown Instrument Co., and vice president of Minneapolis-Honeywell Regulator Co., has been named deputy director of the War Production Board, Third Region. Mr. Brown's appointment was made known by Orville H. Bullitt, regional director of WPB. For the past 18 months he had been serving as regional consultant to the Defense Plant Corp., subsidiary to the RFC.

Mr. Brown's new duties will include maintenance of maximum production in plants engaged in war work and in co-ordinating of efforts in the production drive of the Labor and Management Consultation Division of WPB in Pennsylvania, New Jersey, Delaware, Maryland and Virginia. He will act as liaison officer on manpower problems.

\$ \$ \$

NEW COOLERATOR IS MADE OF MASONITE PRESDWOOD

SHOWING a possible trend toward future refrigerator cabinet construction, the Coolerator ice refrigerator reproduced below is the 200th to roll off the production line at the plant of the Coolerator Company, Duluth, Minnesota. Made almost entirely of

Taking time off to admire the new Coolerator refrigerator are, left to right, W. F. Arndt and J. H. Ganzer, president and vice-president of the Coolerator Company and J. H. Bluhm, Masonite Corporation representative.

Masonite presdwood, a ligno-cellulose hardboard with insulating qualities, the new refrigerator, it is claimed, operates with 10 per cent greater efficiency than its predecessor. To date, the new style Coolerators have saved more than 18,000 tons of steel, that is now being utilized for tanks, guns and ships.

KEY to Our SERVICE

Is Our Long Experience and Careful Attention to your orders for

REFRIGERATION
AND AIR CONDITIONING
SUPPLIES AND EQUIPMENT

Write for our big catalog, on your letterhead

The HARRY ALTER Co.

1728 S. Michigan Ave. Chicago 16, Ill.
134 Lafayette St. New York, N. Y.

AUTOMATIC EXPANSION VALVES
repaired or exchanged
at $1.75 F.O.B. Chicago

☆ ☆ ☆

Until further notice we will be unable to accept other types of repair work.
ALL WORK GUARANTEED FOR 90 DAYS

NEW DUTY
2424 Irving Park Blvd., CHICAGO 18

JARROW
REPLACEMENT
DOOR GASKETS

- Long life, resilient and conform to original specifications.

RECOMMENDED BY LEADING JOBBERS

JARROW PRODUCTS
420 North La Salle St.
Chicago 10, Ill

SERVICE

Reliable service from large stocks. Your requests for refrigeration supplies are handled with expert care.

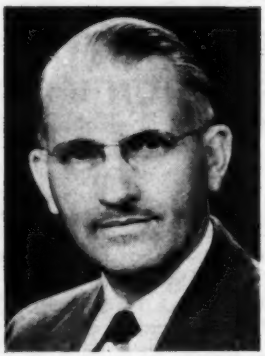
Send for our catalog

FRED C. KRAMER COMPANY

212 N. Jefferson St. Tel. Haymarket 0555 CHICAGO 6, ILL.

CULVER JOINS HENRY VALVE

THE recent appointment of Elmer H. Culver as director of sales is announced by the Henry Valve Co. of Chicago. In his new capacity, Mr. Culver will supervise promotion and sales of the complete line of Henry valves, fittings, and accessories for the air conditioning and refrigeration fields, and will also direct the sales activities of the company's aviation division which concentrates on production of solenoid operated fuel and oil line valves.



Elmer H. Culver

Mr. Culver is well known in the field which the Henry Valve Company serves, having been associated with the air conditioning and refrigeration industries throughout the past twenty-five years, holding key sales posts with Servel Inc., Westinghouse, and the Norge Division of Borg Warner. In the promotion of air conditioning products, he has had extensive experience with both York and Carrier distributing organizations.

MANUFACTURERS AND JOBBERS MEET

(Continued from page 42)

careful consideration. As a result, the experience in the field has been interpreted and presented with profit to the regulating body as well as the industry.

Three principal projects have had the attention of the Industry Advisory Committee and it has worked toward their completion. The primary object was to establish the importance of the refrigeration industry in the minds of WPB and other regulatory bodies. This has resulted in an increased appreciation of the wartime essentiality of refrigeration. The second project was to obtain needed preference ratings and proper CMP status to secure materials for the refrigeration industry. Very real progress was made on this project and the results will be reflected in industry supplies. On the third project, which was to strive for simplification of Government orders, the evidence is already apparent in recent amendments.

The meetings were characterized by a number of symposiums or informal discussions on specific industry problems, as for instance, the surplus war stocks. Many of the attendants joined in concrete and detailed discussion of these problems.

During the meeting, the National Refrigeration Supply Jobbers Association elected officers, as follows:

President, Harry Alter, Harry Alter Co., Chicago, Ill.

Vice-president, H. W. Small, The Thermal Co., St. Paul, Minn.

Secretary-treasurer, H. W. Blythe, H. W. Blythe Co., Chicago, Ill.

Directors: George J. Roche, Parks & Hull Appliance Corp., Baltimore, Md.; Harold G. Stern, Refrigerative Supply, Inc., Seattle, Wash.

IMPERIAL ANNOUNCES FLARING TOOL FOR STEEL TUBING

A NEW, simple economical flaring tool, which will make correct double flares on all popular sizes of thin wall steel tubing from 3/16 to 1/2 in. for S.A.E. flare and inverted flare joints, has been announced by The Imperial Brass Mfg. Co:, 1200 W. Harrison St, Chicago 7, Ill. The tool also can be used for making single or double flares on copper or aluminlm tubing. It insures against cracking or splitting of tubing in flaring because it folds back the end to make a flare with double-thick, double-strength walls.

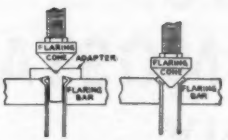


Fig. 1 Fig. 2

Two of the important advantages listed for this new tool are: first, it can be used right on the job; and second, one tool will handle all the most widely used sizes of tubing—3/16 in., 1/4 in., 5/16 in., 3/8 in., and 1/2 in. O.D. It is small and convenient to work with No vise and no hammering are necessary and flaring can be done in very close quarters. Tool first bells the tubing, using an adapter as shown in Fig. 1, then completes the double flare as shown in Fig. 2, very much the same as a conventional flaring tool. It can be used with soft steel tubing of seamless, butt-welded or lap-seam-welded construction having not over .035 in. wall.

● Idle and surplus inventories of refrigeration parts can now be put to essential use in helping to maintain the nation's huge investment in refrigeration.

We buy outright for cash, usable parts for distribution to over 20,000 refrigeration service-men customers. Let us put your idle inventories to good use—you will then be helping conserve scarce and precious materials.

The Harry Alter Co.

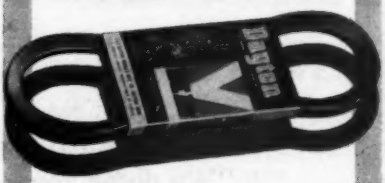
1728 So. Michigan Ave.
Chicago 16, Illinois

Dayton

V-BELTS

FOR ALL LEADING MAKES OF HOUSEHOLD APPLIANCES

In the interest of conservation, see that Victory Vital V-Belts are properly installed with rust-free pulleys in correct alignment and with proper tension.



THE DAYTON RUBBER MFG. CO.
World's Largest Manufacturer of V-Belts
DAYTON, OHIO

DAYTON RUBBER EXPORT CORP.
38 Pearl St., New York, N. Y., U.S.A.

Complete tool consists of a flaring bar, yoke and five adapters all furnished in a metal kit. It is catalogued as No. 93-FB Multi-Size Double Flaring Tool and is completely described in Bulletin No. 337 which is available from the manufacturer.

WILSON JOINS SUPERIOR VALVE

THE Superior Valve and Fittings Co. announces that Irving A. Wilson recently joined the company in the capacity of sales engineer to handle contacts in Western Pennsylvania, Western New York State, West Virginia, Eastern Kentucky, Ohio, Eastern Michigan, and the provinces of Ontario and Quebec, Canada.

Mr. Wilson is a member of A.S.R.E. having joined the New York Section in 1940. He was connected with the Syracuse Lighting Co., Lipman distributors and also distributors of several different makes of household refrigerators from 1922 to 1931. Until 1935 he was with the Buffalo branch of the Lipman Co., from 1935 to 1938 owned and operated his own sales and service business in Rochester, from 1938 to 1940 was with Melchior Armstrong Dessau Co., Inc., as manager of Rochester, N. Y., and New York city branches, following which he joined the New York office of Dole Refrigerating Co. On May 1, 1942, he joined Douglas Aircraft

Irving A. Wilson

Corp. as a refrigeration technician in East Africa to install and maintain refrigerating equipment in one of the Army camps there. He completed his mission there and returned to the United States April 10, 1943.

WAR HITS UTILITY THERMOSTAT COMPANY

Parts and labor shortage combined with an excess of work have made it impossible to accept any further orders until the first of the year. We thank you for your co-operation.

4011 Halldale Ave. Los Angeles 37

HERMAN GOLDBERG ANNOUNCES ANNUAL CHRISTMAS PARTY

ANOTHER annual Christmas party, the seventh, is announced by Herman Goldberg, to be held at the Drake Hotel, Thursday evening, December 16, following a meeting of Chicago Chapter, A.S.R.E. Preliminary announcements indicate that this will be the biggest and best of Herman's parties which have come to be an annual affair. Commander Eddie Peabody, radio star and banjo artist extraordinary, will be there, also a team of acrobats, a bevy of beautiful girl dancers, and other acts. To top it off, prizes will be awarded. A general invitation has been extended to all members of the refrigerating industry and, judged by previous parties, all are assured of an entertaining evening.

✕ ✕ ✕

HARRY ALTER COMPANY ISSUES NEW SUPPLEMENT

THE Harry Alter Company is ready to mail to any service organization or independent service man, their latest Supplement 138-D. This Supplement contains parts, supplies, and equipment for refrigeration and air-conditioning which are available and in stock. It not only lists regular merchandise but also a great variety of surplus items from refrigeration manufacturers, who have disposed of their excess inventory. The majority of these surplus items are offered at a great saving. In addition, many items are made available which are not delivered at the present time by the original manufacturer. This Supplement 138-D will be mailed on request to any service man.

Troubled With "BO" (Back Order)?

Who isn't these days? BUT since WPB has given us clearance to place orders and since manufacturers' deliveries of merchandise are steadily improving, it stands to reason that "BO" is going to be less and less troublesome to AIRO customers. Hence this suggestion: better get our new 1943 Victory Catalog and place your orders as soon as possible. You know, "First come, first served."

AIRO SUPPLY CO., Dept. A
2732 N. Ashland Ave., Chicago 14, Ill.
WHOLESALE DISTRIBUTORS
Refrigeration Parts and Equipment

WE ARE READY TODAY

In the peak season and after—now and all the time—we are ready to supply you with the tools to do the job. Our stock is frequently replenished well in advance of need, so you can always—

DEPEND on BLYTHE

H. W. BLYTHE CO., 2234 South Michigan Ave., CHICAGO

don't let your subscription lapse

Keeping up with today's events means keeping well informed. That is why you can't afford to let your subscription lapse.

The Refrigeration Service Engineer
435 N. Waller Ave., Chicago, Ill.

EXPANSION VALVES
Rebuilt or Exchanged

Automatic (any make)	$1.50
Thermostatic (any make)	$3.00
Water valves	$2.50

COLD CONTROLS

Domestic	$2.25
Commercial (low or pressure)	$2.50
Commercial (high & low)	$3.25

All work done on money back guarantee.
(All fittings must accompany order)

REFRIGERATION SURPLUS DEALERS
2199 N. Karlov Ave. Chicago 39, Ill.

NO SHORTAGE IN OUR SERVICE TO YOU

Our customers continue to enjoy prompt, accurate handling of their orders for repair and maintenance parts. Why not try us?

Our South Side Branch, 809 W. 74th St., Chicago, has a complete stock for your convenience.

Automatic
HEATING & COOLING SUPPLY CO.
647 WEST LAKE STREET, CHICAGO, ILLINOIS

Send for our 1943 catalog to Dept. RS-3

for
REAL VALUES
ON
REFRIGERATION
AND ELECTRIC STOVE PARTS
See
G & E
WRITE FOR LATEST CATALOG
G & E
EQUIPMENT SUPPLY CO.
400 North Sangamon Street
CHICAGO 22, ILL.

GASKETS
SPEED VICTORY

Write for complete catalog.

• Until Victory is won, war orders come first. Today, our gasket service for every refrigeration need is helping speed war production. Under these conditions, delays in filling other orders are unavoidable.

CHICAGO-WILCOX MFG. CO.
7701 Avalon Ave. Chicago 19, Illinois

CORRECTION

A BRIEF announcement in the October issue referred to a wholesale catalog issued by the Service Parts Co., Melrose Park, Ill. This catalog, mistakenly referred to in the announcement as new, was originally published several months ago and the company advises that there are no additional copies now available for general distribution.

* * *

THE REFRIGERATION SERVICE ENGINEER
November, 1943

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, and March 3, 1933, of THE REFRIGERATION SERVICE ENGINEER, published monthly at 435 North Waller Ave., Chicago, Ill., for October, 1943.

State of Illinois, Cook County, ss:—Before me a Notary Public in and for the State and county aforesaid, personally appeared L. R. Townsley, who, having been duly sworn according to law, deposes and says that he is the Business Manager of THE REFRIGERATION SERVICE ENGINEER, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, and March 3, 1933, embodied in section 433, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, Nickerson & Collins Company, Chicago, Ill.; Editor, J. F. Nickerson, Chicago, Ill.; Managing Editor, J. F. Nickerson, Chicago, Ill.; Business Manager, L. R. Townsley, Chicago, Ill.

2. That the owners are: Nickerson & Collins Co., Chicago, Ill.; J. F. Nickerson, Chicago, Ill.; K. M. Stevenson, Chester, Pa.; Northern Trust Co., Philadelphia, Pa.; L. R. Townsley, Chicago, Ill.; Estate of Oscar Stevenson, Chester, Pa.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are: There are no bondholders, mortgagees, or other security holders.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, as they appear upon the books of the company but also in cases where the stockholders or security holders appear upon the books of the company as trustee or in any other fiduciary relation, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which the stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

(Signed) L. R. TOWNSLEY.
Business Manager.

Sworn to and subscribed before me this 24th day of September, 1943. A. B. Helmark, notary public. [Seal.]
(My commission expires June 24, 1945.)

Help Uncle Sam Go "Over the Top"

LET US PUT YOUR SURPLUS MERCHANDISE TO WORK

WE WILL BUY FOR CASH SURPLUS REFRIGERATOR PARTS

G & E EQUIPMENT SUPPLY CO.

400 North Sangamon Street Chicago 22, Ill.

R.S.E. BINDERS

OUR supply of binders for THE REFRIGERATION SERVICE ENGINEER having become exhausted, we find in trying to reorder that the manufacture of these binders has been barred for the duration, owing to the critical material shortage. We regret that until victory comes, orders from our subscribers for these binders cannot be filled.

THE REFRIGERATION SERVICE ENGINEER

Classified Ads

Rate: Two Dollars for fifty words or less. 30 cents for each additional ten words or less.

FOR SALE—EQUIPMENT. ¼ h.p. Frigidaire Model "S," two cylinder unit used with motor and switch, $32.50. Complete ½ h.p. Frigidaire Model "K" unit used, less motor, $15.00. F.O.B. New York. Write for our surplus list. 25% deposit must accompany order. Edison Cooling Corporation, Dept. E., 310 East 149th St., New York 51, N. Y.

FOR SALE—10,000 High Side floats "as is." In lots of 1,000 @ 60c each. Write for particulars and quotations on 250 and 500 lots. Address Box NO-4, REFRIGERATION SERVICE ENGINEER, 435 N. Waller Ave., Chicago 44, Illinois.

WANTED TO BUY—Refrigeration equipment, new or used condensing units, ¼ to 2 h.p. needed (without priorities). HAVE FOR SALE—3 Practical operation records used to test domestic refrigerators. In good operating condition, but must sell "as is." Make offer. Commercial Refrigeration Maintenance Agency, Louie Jorgensen. Phones Main 4334 and Talbot 3542, 4121 39th Street, San Diego 5, California.

WP

ELECTRIMATIC REGULATING VALVES

•

For FREON SULPHUR METHYL

•

Easy adjustment . . . Simple and durable construction. Available in ⅜, ½ or ¾ inch pipe sizes . . . Ask your jobber for details.

Electrimatic

Automatic Control Valves and Regulators

2100 Indiana Ave., Chicago, Ill.

DEHYDRATORS

ALL TYPES

REBUILT LIKE NEW

New Felts and New Strainers installed. Refilled with New Davison Silica Gel.

Price: $1.00 for up to 1 Ton Dehydrator — F.O.B. New York. All fittings must accompany order.

Send for Our Surplus Stock List!

EDISON COOLING CORP.

310 E. 149th St. New York City 51

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VACUUM PLATE

COOLING and FREEZING UNITS

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